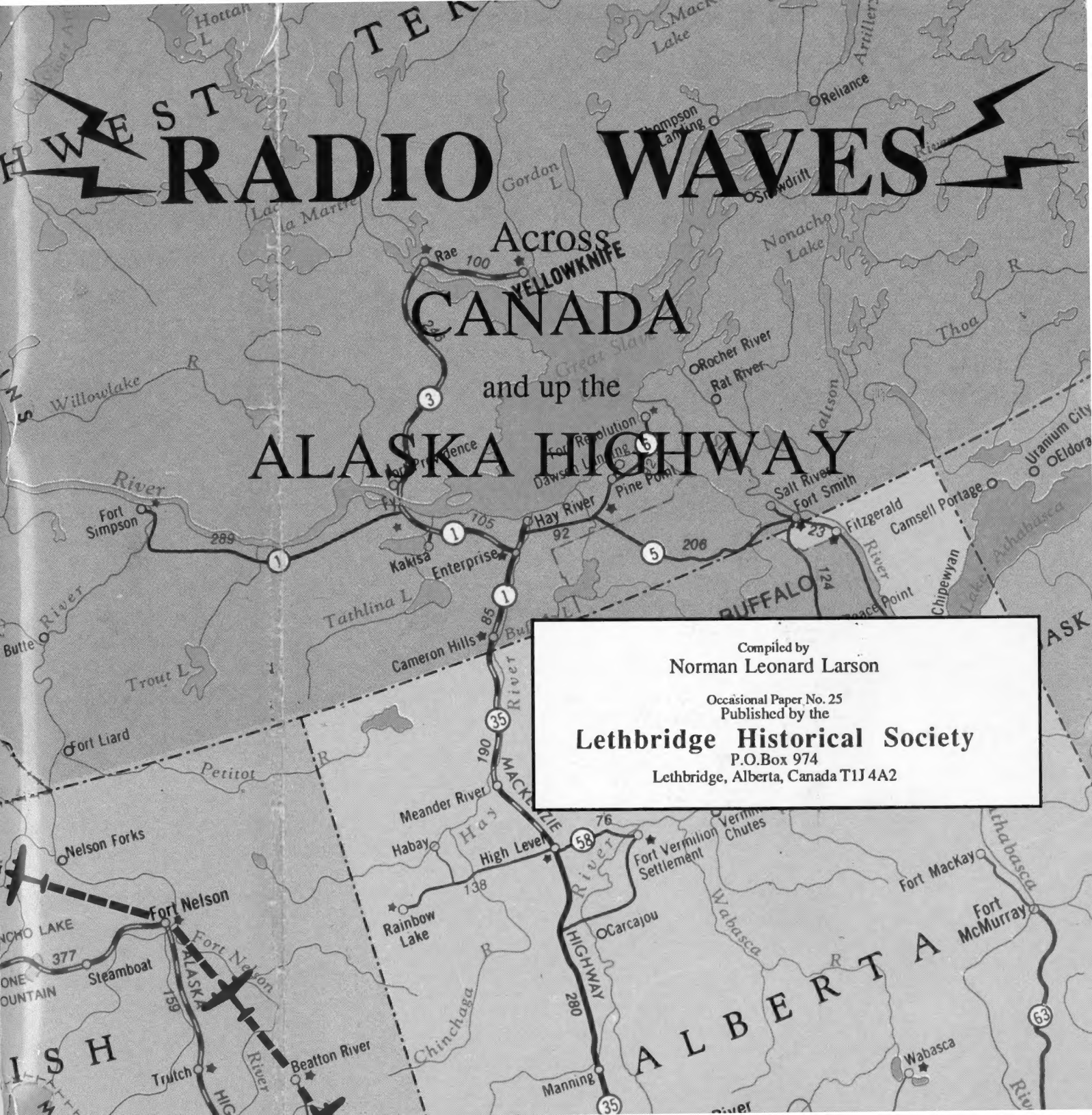

RADIO WAVES
Across
CANADA
and up the
ALASKA HIGHWAY
Compiled by
Norman Leonard Larson
Occasional Paper No. 25
Published by the
Lethbridge Historical Society
P.O.Box 974
Lethbridge, Alberta, Canada T1J 4A2

RADIO WAVES

Across CANADA

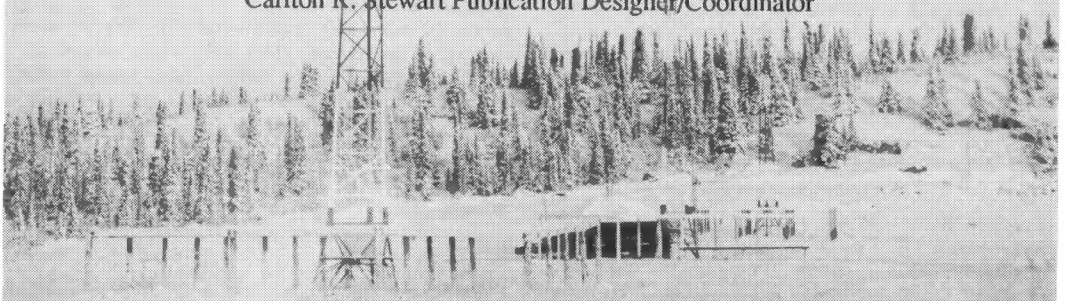
and up the ALASKA HIGHWAY

Compiled by
Norman Leonard Larson

Contributions from:
Max Bonitz, Norman Larson, Jeff Williamson, Russell Travers, Jack Baker, Bill Wylie, Anthony Scott, Larry Nelson, Fred Burwell, Ernie Brown, Ross Perry, Tom Robinson, Charles Stredulinsky, Donald Moore and others.

Carlton R. Stewart and Ron Watmough Co-editors

Carlton R. Stewart Publication Designer/Coordinator



This booklet was prepared entirely on the Lethbridge Historical Society computer.
Camera-ready page printouts were prepared at the Watson Memorial Computer Centre
Printed and bound in Canada by Graphcom Printers.
Inside pages printed on recycled paper.

The cover -
A reproduction of a road map produced by the Survey and Mapping Branch, Department of Energy, Mines and Resources, Ottawa 1977,with the Radio Range Stations superimposed and paralleling the Alaska Highway)

Copyright © 1992 by the City of Lethbridge. Crown copyright reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying or by any information storage or retrieval system, without permission in writing from the publishers.

Canadian Cataloguing in Publication Data

Main entry under title
RADIO WAVES Across Canada and up the Alaska Highway

(Occasional Paper: No. 25)
Includes index.
ISBN 0-9696100-0-9
1. Radio--Canada--History.
2. Radio, Military--Canada--History.
3. Radio operators--Canada--Anecdotes.
4. Flight radio operators--Canada--Anecdotes.
I. Larson, Norman Leonard, 1920-
II. Bonitz, Max
III. Stewart, Carlton Ross, 1937-
IV. Watmough, Ron, 1927-
V. Lethbridge Historical Society
VI. Series: Occasional paper (Lethbridge Historical Society) ; No. 25
TK6548.C2R33 1992 621.384'0971 C92-091262-1

ACKNOWLEDGEMENTS:

To collect articles and stories which happened 50 years before, requires much digging and memory work. The main theme of this book is of those who pioneered the radio circuit from Edmonton to Alaska along the Northwest Staging Route. The spark that ignited this project was a challenge from a former radio operator and radio inspector, Larry Nelson. He challenged me that something should be done before too many of us become "silent keys", in other words, passed on.

With this nudge and the dedication of co-editor Carly Stewart - Chairperson of the Lethbridge Historical Society Book Publication Committee, who has worked endless hours putting our stories into the computer along with physical layout of pages and photo positioning - the spark would have fizzled out.

To those contributors who made many significant contributions including: Jeff Williamson, Russ Travers, O.T. Howey, Jack Baker, Etta MacKenzie, Bill Wylie, Anthony Scott, Larry Nelson, Ernie Brown, Ross Perry, Tom Robinson, Charlie Stredulinsky, Don Moore, Max Bonitz, Lofty Harris, Molly Peddie, Warren Johnson, Gord Harding, Fred Burwell, and many others.

The Department of Transport (Transport Canada), with whom I had worked for 40 years, is acknowledged as the official historian of radio communications in Canada, which spans the very first days of radio from Marconi to the present time. Canada was a world leader in radio communications development because of our vastness and the conditions that we had to overcome. From the Atlantic to the Pacific - 4,000 miles, and on up to the Arctic Ocean, through unmapped and unmanned territory. The Canadian Government required and used all aspects of radio technology from the early days of "spark" communication to direction finders, marine wireless stations for ships at sea, to radio aids for aircraft by satellite, along with the licensing and assignment of radio frequencies and governing radio regulations.

Co-editor Ron Watmough, a retired editor and newsman from the Lethbridge Herald, proof read our manuscript and provided much editorial advice. David Dowey proofread the final draft, and made minor changes. My appreciation to my wife Ruth for her assistance in proofreading and her continued encouragement. To those that have contributed funds to the Lethbridge Historical Society for such publications as these. Book sales generally are not adequate to cover the cost of printing and distribution

The George and Jessie Watson Memorial Computer Centre at the Galt Museum. The Watson family graciously provided funding for this facility, without which, it would have been difficult if not impossible for we lay persons to compile projects like this.

Members of the Lethbridge Historical Society Book Publications Committee: Ralph Erdman, Greg Ellis, Irma Dogterom and Carlton R. Stewart - chairperson. Other executive members of the Society: President: Douglas Card, Treasurer: David Dowey, Vice Pres: George Kush, Councillors: Beatrice Hales, Kathleen Miller, Patricia Marshall, Herb Dunham, Nora Holmes

PHOTO ACKNOWLEDGEMENTS

Jack Baker: 18a & b.
Max Bonitz: title page, 10a & b, 12a, 33a, 44, 45a & b, 47a & b, 51a to e, 67a.
James Doyle: 41.
Gordon Harding: 2.
Warren Johnson: 13a.
Norm Larson: 11a, d & e, 35a, b & c, 39a & b, 40, 52, 53a, b & c, 57a.
Etta MacKenzie: 11b, 15, 27a, b & c, 53d & e, 65a, b & c, 67b & c.
National Museum of Science and Technology: 66.
Molly Peddie: 57b & c.
Ross Perry: 33b & c.
Anthony Scott: 31.
Al Stevenson: 57d,
Charlie Stredulinsky: 11f, 43a, b c & d, 55.
Russ Travers: 4, 10c, & d, 11c, 12b, 13b.
Bill Wylie: 30a, b & c.

CONTENTS

FOREWORD	iii
AVIATION COMMUNICATIONS	1
WHITEHORSE, YUKON 1941 - 1945	4
THE RADIO OPERATOR	10
RISE AND FALL OF THE AIR INDUSTRY AT LETHBRIDGE	14
REPORT OF O.T. HOWEY	14
YUKON SOUTHERN AIR TRANSPORT	18
D.O.T. RADIO OPERATORS NORTHWEST STAGING ROUTE 1944	20
CIVIL SERVICE COMMISSION of CANADA	21
RADIO AVIATION CIRCULAR No. 20	22
DONALD GEORGE MacKENZIE (Radio Operator)	27
NORTHWEST STAGING ROUTE MORSE CODE CIRCUIT	28
ANTHONY (Scotty) SCOTT	31
LARRY NELSON	32
O. E. (Ernie) BROWN	33
COWLEY IN THE GUMBO - 1942	33
NORTHWEST STAGING ROUTE	35
U.S.A. MILITARY AIRCRAFT C119 (Flying Boxcar)	40
A TRIBUTE TO ED GILBERT	42
THE BURWELL STORY	42
TESLIN	43
LIFE IN THE YUKON IN 1946	44
COLD SPELL AT SNAG, YUKON TERRITORY	45
NORTHWEST STAGING ROUTE & AVIATION RADIO (AVRAD)	47
LOFTY HARRIS	52
FLIGHT SERVICE STATION MANAGER	54
LETHBRIDGE AERADIO DIARY	56
JOHN TELFER (Red) PEDDIE	57
FROM MARCONI TO MICROWAVE	58
HISTORIC AIRCRAFT CALLS IT A DAY	66
TRANSPORT CANADA RETIRES DOUGLAS DC3 CF-CUE	67
THE FLIGHT CHECK AIRCRAFT	67
INDEX	68

FOREWORD

In the late 1930s, the general public had caught on to flying, and Canada required reliable mail and air transportation. The Hon. C. D. Howe, Minister of Transport in the federal government inaugurated Trans Canada Airlines in 1938 to serve the people of Canada from coast to coast. This required the establishment of an all-weather instrument radio aircraft guidance route across the vastness of the country. Radio Ranges and meteorological weather services for aircraft were established to operate 24 hours a day. Along with this network, suitable airports and landing fields were built.

The demand for qualified radio operators with Second Class Certificates increased with the expansion of the air service. Many radio schools across the country provided operator training, and experienced operators from other services such as the Department of Marine, Royal Canadian Corps of Signals (RCCS), along with others from provincial police forces and provincial forestry branches, were also attracted to this new service.

When the war with Japan started in 1941, the hiring of radio operators intensified to man a new circuit, called the Northwest Staging Route (NWSR) from Edmonton to Alaska in conjunction with the construction of the Alaska Highway.

It required a lot of know-how to select proper radio sites in the relatively undeveloped Northwest frontier of Canada. Transportation of equipment was a major job. Heavy radio transmitters, sectional pieces of steel towers which would rise to 125 feet or more, emergency power plants and associated equipment were shipped by various routes to their destinations. Some of these routes were via the Northern Alberta Railway to Dawson Creek, B.C.; the outside passage to Whitehorse via White Pass and Yukon Railway; by boat and barge up the Stikine River to Dease Lake and on to Watson Lake; or down the MacKenzie River to Norman Wells, Northwest Territories.

Sawmills were set up near the sites where lumber was produced to construct the radio range, transmitter and administration buildings, along with barracks for the staffs of these new stations.

Radio operators were transported to the sites by all and every means to set up the radio range and communication stations. Early operators flew in by 'bush planes' equipped with floats. Later they arrived by RCAF and Department of Transport (D.O.T.) aircraft, when landing fields were readied, and by transport truck when the new highway was passable.

When the highway was opened in 1942, the D.O.T. Radio Ranges, meteorological service and point-to-point radio communications were all in place ready to guide the large volume of Lend-Lease aircraft from the U.S.A. destined for Russia and the Eastern Front of the Second World War which was in its third year. Approximately 8,000 aircraft were ferried through this route to Russia.

Construction of the highway and the placement of the route facilities were completed in less than one year, between December 7, 1941 and November, 1942, when the Alaska Highway was declared open.

Our stories herein are a compilation of reminiscences of some of those who manned these remote locations, and of their work with the Canadian Department of Transport through the intervening years.

Norm Larson

AVIATION COMMUNICATIONS

H. J. (Jeff) Williamson D.R.A.E.

Jeff Williamson was the Department of Transport District Radio Aviation Engineer - Edmonton, he wrote this account in 1985 at Peachland, B.C. where he was retired.

Experiments of Marconi and his first successful communication by "wireless" across the Atlantic to Signal Hill in St. John's Newfoundland were literally and figuratively the "spark" that started the burgeoning era of electronic communications in Canada, and provided the basis for transmitting and receiving intelligence over the great spaces of Canada where wire communication facilities cannot either physically and/or economically be provided.

From this beginning, coupled with the pioneering use of aircraft in the great hinterlands of the country, sprang the need to develop and use communication facilities, that in the evolution of a most fascinating and ever increasing complex technology, now makes it possible to utilize the know-how that permits intelligence to be exchanged to and through the interplanetary system. It also brought the spin offs to make possible the safe and efficient operation of aircraft throughout the world. However, our particular concerns is the area covered by the "Macplan" study.

Canada's early radio needs were directed to marine operations, and from 1911 through 1936 the federal government control of such activities was either under the Canadian Navy or the Department of Marine. At the same time the Canadian Army through its Royal Canadian Corps of Signals (RCCS), and the Royal Canadian Air Force became interested in the potential of wireless for tactical purposes. Some of the earliest experiments in ground-air communications were with an aircraft flying above a ship sailing between Vancouver and Victoria. In one of the early successful tests of voice from aircraft to ship, the flyer is recorded as saying "If you hear me put up one flag. If you can't hear me put up two flags."

In the 1920s the RCCS also embarked on a two-fold benefit program of providing a training ground for personnel, combined with the benefit of providing communications over the vast Canadian Northland by establishing a system of radio stations with Edmonton as the anchor or base connecting station. It saw stations placed in operation at Whitehorse, Dawson City, Aklavik, Fort Smith, Fort Simpson, Norman Wells and other points of commerce. This system became known as the North West Territories and Yukon System (NWT & Y System) and did much to provide the sinews by which the commerce of the vast area was tied together.

At the same time the era of Canada's famed 'bush pilots' began, and their aircraft crossing the horizon to the Land of the Midnight Sun started to roll back that northern frontier. It previously had been locked except for explorers of ancient fame battling the short open season of summer and the long and frozen continuous darkness of the Arctic winter, and intrepid fur traders and trappers whose lives revolved around the interests and influence of the Hudson Bay Company. The aeroplane led to many things including discovery of minerals and oil, and with that the inevitable commerce that follows such industrial pursuits.

It was an elementary process of evolution then that the wonder of electronic technology found itself being translated to the needs of these northern operations, and gradually aircraft were fitted with radio equipment to permit messages to be sent and received while in the air.

The mysteries of electronics also were being directed toward establishing navigation guidance systems, about 1930, when Civil Aviation was a branch of the Department of National Defence. The RCCS was charged with providing assistance in the form of ground navigation aids for the development of an air mail service across the Canadian midwest from Winnipeg to Edmonton via Regina, Moose Jaw, Lethbridge and Calgary.

A chain of five "beacon" stations was installed in 1931 at Forrest, Manitoba, Regina, Maple Creek, Lethbridge and Red Deer. It provided an aerial guidance or a visual guidance of a "beam" or "course" and voice communications with the aircraft. However, while in the air the pilot could only receive one mode of transmission at any instant. If he listened to the course or beam, he could not use his visual indicator on the instrument panel or vice versa. However, when the "beam" station went on voice transmission all course guidance signals disappeared. Likewise, guidance signals meant no voice transmissions.

The depression years then took their toll and aviation was no exception to the curtailment of all phases of commerce and the economy. But as the 1930s went on, gradually the benefits of limited science advances became evident and available as new equipment was developed.

There was a resurgence of northern flying as well as in southern parts of Canada, and all the time the NWT & Y had been in the frozen north, providing excellent service on a limited budget for personnel and equipment.

The year 1936 saw the formation of the Department of Transport and the birth of a unit in the old Marine Radio division to be known as the Aviation Radio Section (AVRAD), and with its inception, a program to provide a Canada-wide system for aerial navigation radio aids, coincidental with the government policy to establish a national airline - Trans Canada Airlines.

Budgetary consideration however did little to have installed any such facilities north of Edmonton. But in the next two or three years the availability of a radio compass for aircraft was a boon to navigation, in providing a device which would indicate, as the name implies, the direction of the receiving apparatus, from the point of origin of the radio signal being transmitted. This was a great step in assisting pilots to find a fixed spot while flying over a trackless region and/or, as their competence and skill to fly above or through clouds might permit, to guide them to a predetermined point. Techniques to orient the aircraft above a point and follow a procedure of timed turns and rates of descent over known terrain permitted "let down procedures"

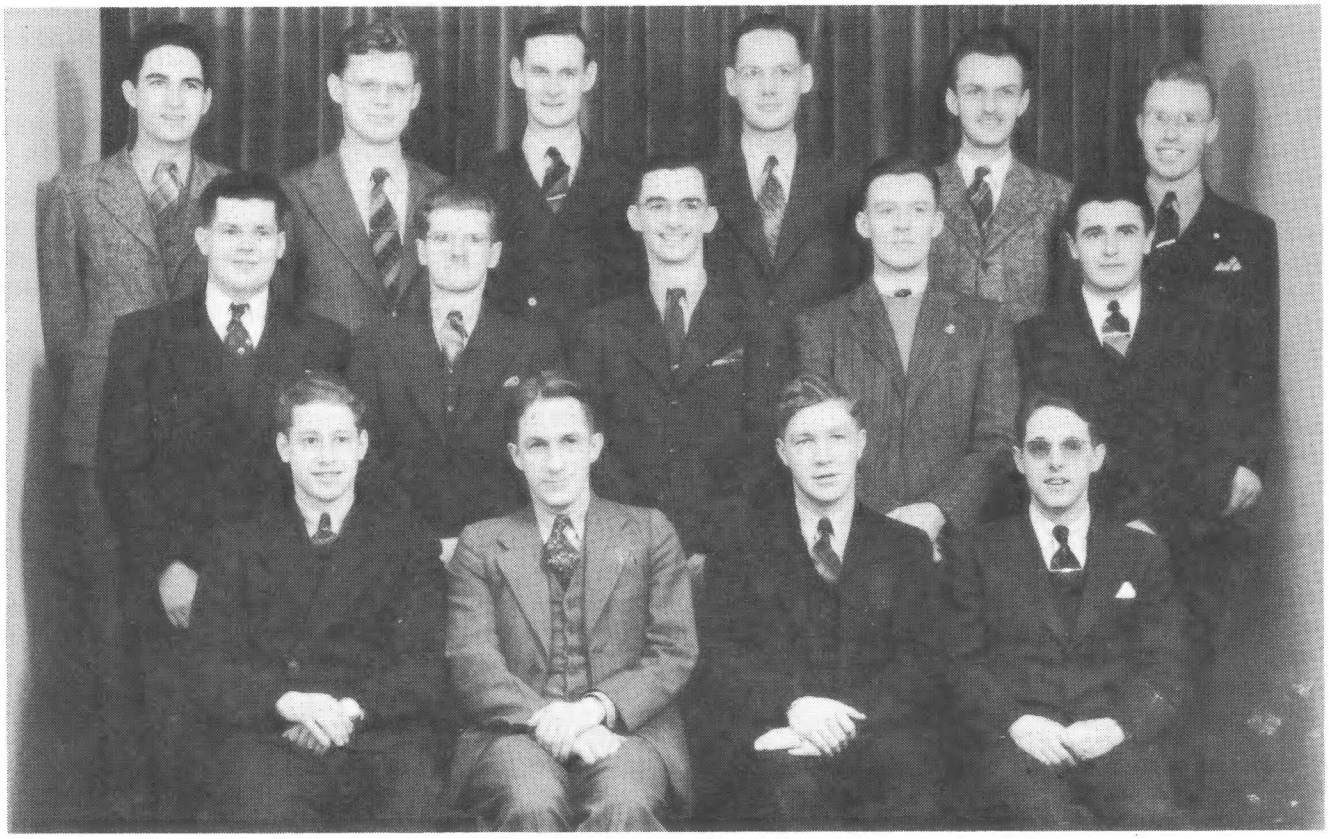
to be worked out. They were approved and standardized and thereby did much to ensure a continuity of service, and safety-enhanced scheduled or non scheduled trips. Prior to this, these were not possible in areas not serviced by more sophisticated guidance systems such as radio ranges - as the old "beam" stations were now called. By this time radio ranges were augmented by other devices known as "cone markers" which electronically triggered a light on the aircraft instrument panel to indicate an aircraft position directly over a "radio range". However, the north had none of these sophisticated aids until World War II pressures dictated the development of the Northwest Staging Route, as it came to be known - a string of airfields and navigation aids (envisioned by Grant McConachie) from Edmonton to Whitehorse with the potential of a route on to Alaska. In 1941, construction started and by January 1942 facilities including airports, range stations and radio communications were constructed by Canadian contractors and government officers under the direction of the Department of Transport, to provide gravelled runways, buildings, services for water, power, etc.

Radio range stations and point-to-point communications were at Grande Prairie, Fort St. John, Fort Nelson, Watson Lake and Whitehorse.

These facilities played an important part in the development of the then newly-hatched and urgent project, the construction of the Alaska Highway, as well as providing the most advantageous route for ferrying planes and supplies to Alaska and on to Russia.

An important offshoot of this program was the scheme to pipe lower MacKenzie River oil from the Norman Wells field to a refinery to be built in Whitehorse. Accompanying the vast shipments of materials via the overland and water routes to Norman Wells, came an unprecedented airlift, under U. S. military control, for personnel and urgent supplies from Edmonton to Norman Wells and intermediate points.

About this time, the Yellowknife area had assumed increased importance and the first radio range station, north of Edmonton, in the MacKenzie system was constructed and complemented the new airport displacing the older air services, which to this time had relied on much smaller float and ski equipped planes.



DEPARTMENT OF TRANSPORT
Northwest Airway Radio Stations
JUNIOR OPERATORS - - - JANUARY, 1942

G. LENTSCH	L. HIGGIN	G. W. McGLASHAN	M. HANNAH	M. R. JENSEN	H. E. CONRELL
VFQ	VFT	VFS	VFD	VFS	VFR
G. HEATH	A. C. EDWARDS	J. P. LUMB	A. E. STEIGENBERGER	J. R. WASYLYK	
VFBQ	VFH	VFBP	VFF	VFA	
W. J. CHADBURN	H. J. WILLIAMSON	A. T. SIMPSON	W.L. FREEK		
VFK	Maintenance Engr.	VFCS	VFM		

The pipeline from Norman Wells to Whitehorse, which was known as the Canol project saw U.S. military forces install their own communications facilities, to parallel those already long established at many of the points by the Royal Canadian Corps of Signals. Included in the package were two "loop type" radio ranges, one at Fort Simpson and the other at Norman Wells, which were installed and operated by the Army Airways Communications Service, an agency of the U. S. Army Air Corps.

Meanwhile, the Royal Canadian Air Force, in conjunction with the U. S. Air Force was interested in developing a long range navigation (LORAN) program. LORAN stations involved the erection of 600 foot steel towers for antenna purposes, at Cambridge Bay and Kittagazuit. The tower of "Kitty" was dismantled later, but the one at Cambridge Bay still serves as one of the highest powered Non-Directional Beacon stations ever operated for aerial and marine navigation in the northern latitudes of North America.

It should be mentioned at this time that point-to-point and air-ground communications in the northern latitudes, and especially in the Northwest Territories, were subject to many disturbing influences not experienced to the same degree and in combination in many other locations in the world. Radio or signal "blackouts", attributed to effects of the Aurora Borealis, sunspot activity and heavy mineralization of the terrain, combined in devastating combinations to render some radio bands of the spectrum entirely useless for extended and often unpredictable periods. These phenomena greatly influenced radio use, and the operations which are dependent on their satisfactory performance, through many years. However, with improved technology, and the use of the now common VHF (Very High Frequency) and UHF (Ultra High Frequency), single sideband techniques, and the introduction of services via satellites, a new era of northern communication had arrived.

Setting the stage for such historical communications development was the increased flying activity of wartime and immediate post-war periods which saw airlines and D.O.T. installing radio equipment to meet the need for expanded services which the NWT & Y had provided in an attempt to keep abreast of the growing needs. D.O.T. communications and non-directional beacons appeared at many of the airports and landing fields that had been expanded or created. In some instances these were for the Canol pipeline activity, so that at Fort McMurray, Embarass, Fort Smith, Fort Resolution, Hay River, Fort Simpson, Norman Wells, Coppermine and Cambridge Bay, the D.O.T. assumed the role of air service stations. The D.O.T. however still relied on the backup of Royal Canadian Corps of Signals (RCCS) that provided essential communications as well as air service functions at points where they alone were established. The loop ranges at Fort Simpson and Norman Wells were phased out early in this transition.

In the early 1950s planning was advanced and construction began, so that by 1954, the frenzied air and sea lift to construct a series of special defense installations, known as the DEW (Distant Early Warning) Line comprised a chain of electronically interconnected sites stretching across the Arctic coast of Alaska and Canada, and as far east as Greenland. Many of them had extensive airport and hanger facilities as well as essential personnel accommodations and power supplies, to support the operation of sophisticated radar stations, microwave circuits for interstation communications and tropospheric links to connect the system to sensitive and backup military installations. They also supported and linked decision-making centres, including Washington, D.C. and Ottawa. All this meant the need for interim facilities to permit air freighting, round the clock from supply centres such as Montreal, Winnipeg, Edmonton, Seattle, Anchorage and Fairbanks.

The services north of Edmonton saw the establishment of non directional beacons and communication stations at Contwoyto Lake and Colville Lake, increased service at Sawmill Bay, a beacon at Snare River and the early installation of temporary non-directional beacons at various DEW sites, as they warranted such a facility in keeping with the tempo of construction, to be later replaced by the permanent ones that formed part of the sophisticated electronic package when the DEW Line was operational.

At approximately the same time a secondary military surveillance line known as the Mid Canada Line was established from B.C. to Labrador, and closely approximated the 60th parallel of latitude across the Western provinces. This also provided additional non-direction beacon check points. For the most part this line has been dismantled and equipment removed approximately 10 years ago.

Before the 1950s ended, the D.O.T. took over all the operations of the NWT & Y on a gradual basis, and coincidental with this, facilities for telephone and telegraph were gradually built so that positive and expanded services to Yellowknife, Fort Smith, Hay River, Fort Simpson, Wrigley, Norman Wells, Inuvik, Tuktoyuktuk and Cambridge Bay and other points became connected to the "outside" by voice facilities. Via the same channels it became possible more readily to keep track of air traffic movements through the extension of certain air traffic control service operations. During this period, instrument landing facilities were installed at Yellowknife and then Inuvik.

The oil and gas exploration in the Arctic Archipelago has seen application of other devices which have become common and displace the older navigational aids of radio ranges in many if not most of the more heavily travelled air routes. These included VOR (Very High Frequency Omni Range), and the Distance Measuring Equipment (DME), by which the distance of the aircraft from the DME can be read directly on the aircraft instrument panel. The VOR provides an all around (360 degree) bearing indication, on the instruments of the plane, so that its overall position (as the name Omni implies) is readily determined. These facilities combined may be referred to according to application and combination as TVORs, TACAN, VORTAC, and small air transportable versions are already in use at many relatively inaccessible locations and requiring limited power supplies.

Other navigational devices which have equal value to ships, are also making their impact on long range

navigation problems, and with certain limited powerful ground stations located around the world, complete global navigation can be accomplished. One such system is Omega. Other systems based on devices that function on parabolic variations of signals from a series of three stations can be translated to direct track guidance on an instrument and/or even a plot trace on a map in the aircraft cockpit or navigational compartment.

With the transpolar traffic of aircraft from Northern and Western Europe to and from the Orient, and scheduled jet service to both Western and Eastern Arctic plus the current traffic for petroleum resources exploration, the basic network to care for the Macplan expansion may well already be in place.

The technological advances as spin offs of space exploration and the evolution of satellite technology, the micro navigation of electronic wizardry has permitted a whole new generation of airborne equipment for use in aircraft. It has also permitted installations in remote areas where unattended power supplies of one form or another (including atomic) and with limited output, can now be advantageously located to enable the D.O.T. to span the trackless wastes. With various forms of navigational or navigational-assisting equipment, the combinations of these complementary units in aircraft and on the ground present an entirely new approach to coping with the overall requirements.

The advent and success of Canada's Anik satellite and the current program for a separate satellite for the transfer of data from and the position-determining of aircraft, augers well for many more significant changes in aerial navigation and communications techniques. However, if geostationary techniques are used the benefits for use at high altitudes of the Arctic may be mitigated by the slant. The grip of the Arctic and Canada's North has been loosened through this electronic evolution in a relatively short space of time.

WHITEHORSE, YUKON 1941 - 1945

Russell Travers

Russ Travers was a radio operator and was posted at many different stations during his career with the department. Russ wrote this account in 1991.

Whitehorse was not just a town in the Yukon. It was an experience that those of us who were there 40 years ago during the Second World War would remember more clearly than anything that happened to us before or since. My name is Russ Travers and I was the first Officer In Charge (OIC) of the Whitehorse Radio Range Station between 1941 and 1945.

Before that I'd been in charge at Swift Current, Sask, which grew, under the impetus of the Commonwealth Air Training Scheme, from a small airport on the prairie to a primary training base for 1,000 young English pilots. I heard about something called the Northwest Staging Route and that OICs were needed at ranges north of Edmonton. I was mildly interested but my wife was enthused. This was because her father had been a Klondiker in '98, had climbed the Chilcoot Pass, built a boat at Lake Bennett and sailed down the Yukon River to the gold fields at Dawson. She wanted to see the land he loved and talked so much about.

Russ Travers Officer in Charge
at the Whitehorse Radio Range Station 1942

Since the houses at Whitehorse weren't finished my wife came up later by boat and so missed out accompanying me on a flight from Edmonton to Whitehorse that took six days. This was with Yukon Southern Airlines, sometimes called 'Yukon Seldom'. The first leg was Edmonton to Grande Prairie in a Barkley Grow. This was a twin engine plane that carried 12 passengers and had a small baggage compartment. The method of loading was unique. First the pilot climbed in - Ernie Kubicek, who some years later flew into a mountain north of Vancouver. There was no co-pilot so the passengers were next. Then the ground crew loaded baggage and freight express in the center aisle until it was full to the roof. Lastly, the plane door was shut from the outside. Our flight time to Grande Prairie was short so we did not have long to dwell on the question of how to get out of the plane if it landed where there was no one outside to open the door and remove the baggage.

It had rained 40 days and 40 nights at Grande Prairie. The clay (gumbo) soil had a consistency of glue. It stuck to everything including the taxi. The driver, who was also Yukon Southern's ground staff, and, if my memory serves me right, the mayor, had solved his visibility problem by firing a bullet through the windshield. The hole provided forward vision of a tunnel variety and for lateral information he relied on passengers who peered out of a partly opened side window.

Next day the second leg to Fort Nelson was in one of President Grant McConachie's latest acquisitions, a Lockheed Lodestar. It came complete with pilot Don Patry, a co-pilot and stewardess. Passengers included Ozzie Smith a Department of Transport radio operator relieving Oliver Howey at Fort Nelson. Howey had gone in earlier by tractor train and installed a homing beacon which was the only aid to air navigation between Edmonton and Whitehorse. Also

aboard were Officer in Charge Art Taylor, designate for Watson Lake; Phil Eldridge a field technician who, with Don McDonald, would install radio ranges at Whitehorse, Watson Lake and Fort Nelson; Earle Porter of Ottawa, who hoped to add experience to his still damp engineering degree; a Mountie, some construction types, myself and Doc 'C'. The Doc, had lost his practice and estranged his family because of alcoholism, was heading north to be resident doctor at one of the isolated northern hospitals, and hoped that by getting away from temptation he could dry out. We all wished him well.

Bush pilots were a breed apart. All they needed was an occasional glimpse of the ground to know where they were. But this didn't help much when flying over solid undercast, so Patry had to rely on the Nelson beacon. Homing beacons are fine for cross-country navigation but were never meant for blind landings. Nevertheless when we broke out of the clouds the runway was dead ahead and just below. Patry went on to become a pilot with Air Canada and McConachie became President of Canadian Pacific Airlines. So we'd been in good hands all along. It just seemed chancy at the time.

As the trip north continued, taking six days, our thoughts turned increasingly to food. Supper at Fort Nelson was macaroni with a steaming cup of chocolate. It tasted good but oddly the station work crew was gone from the mess hall in 10 minutes while we plane passengers remained for second helpings. Breakfast, dinner and supper next day had the same menu, macaroni with hot chocolate on the side. By the third day we too were leaving in about 10 minutes. Macaroni had been served three times a day for over a month but no workers left the camp. For them there was no way out, only in by barge up the Stikine and Liard and overland by tractor. War can be hell.

We were glad on the fifth day to fly to Watson Lake where supper consisted of soup before the entree. After a long wait we came to realize that the soup was the entree. By the time we reached Whitehorse the Doc was cold sober and food, not the war effort, was first in our thoughts.

How could anyone have known what would happen to Whitehorse and to the innocents there who thought they were in control. Homer Mears, manager of the Whitehorse Inn, suggested to me that we buy some city lots. I could have managed a dozen at $15.00 apiece but they'd been unsold for 40 years and I was no sucker, so I declined. A year later they went for $500.00 each and the year after that could not be bought at any price.

Originally the Northwest Staging Route was conceived as a secure communications and air route to Alaska from the continental United States. Canada's role was peripheral; install some airstrips and radio ranges. The real action was not in the boondocks but in Europe where Germany had clobbered France and was closing in on England.

Pearl Harbor changed all that. With the Japanese in the war and the Pacific sea route unsafe, the Americans decided they needed a road from Fairbanks, Alaska to Dawson Creek, B. C. which was the end of the railway. This was the Alcan project. For fuel they laid a pipeline to Whitehorse from Norman Wells in the MacKenzie where Imperial Oil had a few producing wells. This was the Canol project. To refine the crude they dismantled a refinery in Texas, shipped it in parts up the coast to Skagway, by narrow gauge Whitehorse and Yukon Railway, and put it back together in Whitehorse. There were multiple spinoff projects.

The D.O.T. had to put in airports and radio ranges at Snag, Aishihik, Teslin, Smith River in addition to Whitehorse, Watson Lake, Fort Nelson, Prince George and Grande Prairie. This, plus completion of the Alcan and Canol projects, meant boom times. In two years Whitehorse's population grew from 600 to 30,000. Military personnel, more RCMP, many civil servants but mostly thousands of workers drawn from all over Canada and the United States.

They came in a flood, did their jobs and left only to be replaced by more. There was a constant flow in and out of Whitehorse. The town's services geared to handle hundreds collapsed and had to be rebuilt to handle thousands. For the D.O.T. at Whitehorse it meant that the original five would not suffice.

The five were: Tony Scott, Ollie Antilla, Elmer Nelson, Ott Rajaaho and myself. I was too busy to take a shift until Ott fell off a pole and broke his leg. For the next few months I had to take my turn in the operating position, which was just as well because my 'fist' was getting rusty. I'd worked fast circuits in Ottawa with the Royal Canadian Corps of Signals but hadn't handled code for a while and it was beginning to show.

There was no landline, teletypes or telephones until 1944 when wire was strung along the highway. Until then every message, every word was handled by two operators, one sending, one receiving. Over the years 1941-45 millions of signals were exchanged. Every aircraft that flew the route required a flight plan, enroute position reports and an arrival message. All administrative traffic for the D.O.T. and Yukon Southern went on our circuits. Commercial messages for the thousands of transient workers were handled as we supplemented the signal corps service. Every weather report, every hourly sequence, every pibal, every forecast was carried on D.O.T. radio, and all air-ground communications until Air Traffic Control was set up in 1944. Our radio range staff provided landing and takeoff information for the fleets of C54 transports that flew the milk run between Alaska and the States. We handled all air-ground for Yukon Southern, Pan-American, Alaska Airlines and for the host of bomber and fighter aircraft bound for the Russian front. I wish I'd kept a count of how many aircraft, how many air-ground contacts, how many weather sequences. The total would be staggering.

By late 1942 there were four positions operating 24 hours a day. Some of the operators were: John Chalmers, Duke Martin, Warren Johnson, Bob Williamson, Curt Hart, Ray Oliver, Gord Harding, Ernie Scotten, Russ Clemo, Jimmy Marr, Frank Grant, Max Hubbard, George Goodwin, Stroy Leith, Robby Robinson, Joe Kandell, Junior Broughton, Herbie Foxcroft and many, many more.

Larry Nelson became officer in charge when I transferred out to Regina.

I have no way of comparing the Northwest Staging Route with any other circuit but I suggest it was unique in the numbers of people involved, in the magnitude of work performed, in the special difficulties encountered of remoteness, of limited resources, of urgency, of that special nightmare of atmospheric interference caused by northern lights and finally in the impact we had on distant battlefields in Russia where the world's future was being decided.

Unique too in the rawness of the human resource that made it possible. Most of the radio operators were fresh out of school. They'd only heard code under ideal conditions. Few had seen a 'bug' or could type a message directly on the typewriter.

There was a word for a new operator, LID. I don't know its derivation but the word conveyed disdain. Not unkindly, because he who used it was himself not long from the LID stage. By tradition a new operator had to be put 'under the table'. The method was simple. As soon as the new man sent 'K' which meant send your traffic the hotshot at the other end would crank up his 'bug' until the message sounded like a blur. When, timidly, the new operator asked for a repeat there would be an eloquent pause as if to say "I can't believe such incompetence", and when the repeat came it would be slow, derisively slow. So long as the LID took his initiation in good part no harm was done and very soon he became part of the team and positioned to greet the next newcomer in like fashion.

At Whitehorse a new operator was put in Position 4. We dared not put him in any of the other positions, they were too difficult. So what was Position 4?

Anchorage broadcast 24 hours a day a continuous stream of coded numbers and letters which when decoded by the meteorological staff translated into an hour-by-hour update of weather information from Alaska, the Yukon, Panhandle, MacKenzie, the upper States and northern B. C. The signals were sent by machine at 35 words per minute.

Since the new operator had just barely graduated at 20 words a minute, what he heard sounded like gibberish. I had too many real problems to sympathize, so for him it was sink or swim. Of all the operators who were put in Position 4 only one had to be shipped out, all the rest coped and soon became so good that they could be depended on to do whatever was needed on any position.

Position 4 also collected hourly weather reports from Snag, Aishihik and Teslin. The LIDS on these stations were learning the 'bug'. This is a keying device that sends dots automatically, the speed of the dots being controlled by an adjustable weight. It was an ego matter to send fast dots rather than slow dots so until mastery was achieved there were many more dots sent than were needed. One day I sat in on Position 4 to backup a new operator while he got the hang of things. The operators sending the hourly sequences had not yet achieved mastery so dots were flying in all directions. As each station sent its report I typed in the words while the new operator looked over my shoulder and tried to relate what he was hearing with what I was typing.

I said, "Well, I know what he means." Which was true. It's easy to copy clean code but it's possible, given a few clues, to copy unclean code. It was no big deal but it must have seemed like magic to the young operator who'd never heard code before that wasn't perfect.

People asked how cold it got in the Yukon. My first winter I had to check supplies in the freight shed which was a wooden structure built on pilings over the frozen river. I though I'd freeze standing up. No one else seemed to mind the cold so I made enquiries.

The answer was proper clothing and lots of it. Mukluks or moccasins instead of leather soled boots, two pairs of heavy wool socks, ski pants of blanket cloth that laced at the ankles, two pairs of woolen long johns with the trap doors tightly buttoned, a fleece lined Mackinaw, fur hat with ear flaps, mitts not gloves and overall, a windproof parka. Mobility was sacrificed for survival.

The D.O.T. buried many underground control cables. Their locations were unmarked because no one expected that the ground was going to be disturbed again. But where there are thousands of workmen there are buildings and then there are roads. I got so I knew what to look for when our control lines went out. I'd drive along the underground cable route until I spotted a road grader or a tractor with its blade down and invariably there would be a severed cable, two ends sticking up out of the ground, up to 51 pairs of lacerated wires to be rejoined in correct sequence, twisted, taped and reburied.

One day in mid winter the Range went out and a tractor driver asked me, "What's that?". 'That' was two ends of a six-pair rubber insulated, lead covered, jute wrapped #18 gauge cable. I laid out my tools, identified the pairs and began to reconnect. It took much longer than usual and it was very cold. The #18-gauge is heavier than most control wires so I had to remove my mitts to twist the wires. My fingers kept going numb so I passed my hands through the flame of a blowtorch until they thawed. You can do this if you time it right. Then I decided to solder the joints. Wire solder usually flows easily if you use a little flux but this day nothing worked, the solder just fell off in gobs when I applied the blowtorch. So I quit trying, taped the joints as best I could and went back to the office to warm up. I checked the thermometer. It was 68 degrees below zero Fahrenheit.

That was the year Snag's mercury thermometer went down to 80 degrees below zero and couldn't go down any further. Some spirit thermometers, that could dip that low, were flown in but by that time it had moderated to 60 below so they weren't needed.

Other winters were not so cold but there was always a basic survival technique. Under 30 below you couldn't breathe through your nose so you put a scarf across your mouth and breathed shallowly to prevent lung frostbite. If your truck was going to sit outside for long you didn't shut off the engine. Straight anti-freeze turned to jelly in the deep cold. Don't ask me why but we added some water to prevent this. Wartime rubber was ersatz and inner tubes got brittle so you inflated carefully.

"Blacks" from the deep south drove U. S. transports on the Alcan Highway and when two of them froze to death a general order was issued: if your engine quits, climb into a sleeping bag and stay there. Let help come to you, don't go looking for it.

Whitehorse was a man's world. There were a few wives trying to make a home for men who all too often were inundated with work problems. It wasn't easy for the women, trying to raise kids in the wild, still there were compensations. Friendships made were deeper and longer lasting than "outside", and as one matron past her prime happily remarked, "It's the only place I've been where even the trains whistle at me." On the whole I think the women enjoyed themselves. We were all young and didn't know that what we were doing was impossible.

Joe M was chief of Pan American Airlines and couldn't keep stenographers. They kept leaving to get married. Next time I recruit in Seattle, Joe told us, the first qualification is going to be unmarriageable. When he got back with the new stenogs many of us were on hand to see how he had chosen, and the concensus was that Joe had selected well. As it turned out they were married in three months, about normal for Yukon courtships. Sometime later poor Joe had problems, but I don't think it was on that account.

We had a lot of airplane crashes in the north. Who can forget Million Dollar Valley? In 1942 six North American Martin Marauder B26 bombers took off from Edmonton bound ultimately for Alaska and perhaps Russia, each carrying, besides aircrew, a cadre of young pilots who had recently got their wings in Texas. Later on, these flights came through like streetcars, but this was the first.

Navigators were scarcer than pilots so two planes so equipped led the rest. At Edmonton one bomber flipped and then there were five. Two landed at Whitehorse which left three unaccounted for. The navigator in the other lead plane got lost between Fort Nelson and Watson Lake so the pilot had to land, out of gas, in darkness where there was no airport. The two planes following did as they'd been told. Follow the leader.

In the morning they looked around, at the mountains that ring Lake Muncho, at the endless stands of jackpine. The three planes were nestled in snow in the only clear area for miles around. No one was killed, no one was hurt but no one, least of all the navigator, knew where they were. Yukon Southern found them and, using a skiplane, ferried them to Whitehorse. They bunked down in sleeping bags on the floor of the radio operating room where I talked to them. They'd shot grouse for food with 50mm cannon that literally disintegrated the birds. They said Canada was different than Texas. In Texas if you missed one airport there was another one just ahead. Some of them seemed surprised I spoke English and wasn't an Eskimo.

The three bombers never moved again in what was immediately named Million Dollar Valley. When an officer from the U. S. Air Force flew in a month later to assess what was salvageable he found there was nothing of value left. He filed a furious report from Whitehorse but nothing came of it, his superiors having learned that scrounging in the north had been refined to an art form. For years afterwards bits and pieces would show up but by then the trail was cold, and besides, compared to the battle of Britain and the carnage of the Russian front what did three gutted bombers count for anyway? Some said a certain airline had a windfall but I wouldn't know about that. Probably just loose talk.

Of the two bombers that got to Whitehorse one hit a snowbank on takeoff and was towed off the field, the last one groundlooped at Fairbanks. Delivery rates improved later on.

Many planes went down and were never found. One military transport reported over the Watson Lake Radio Range about four miles from the airport then disappeared. The area was searched from the ground and air without success until another plane, coming in off course spotted it in the jackpines. At about the same time a sergeant from the downed plane staggered into the operations building at Watson Lake with a broken leg and a crutch he'd fashioned from a tree limb. If a plane went down in the north an intensive search began but luck was needed to find it. Anyone who survived a crash was just beginning his ordeal. In the summer, mosquitoes could suck you dry but the black flies were infinitely worse. You couldn't brush them away, they just swarmed. There were lots of hospital cases, laborers with eyes jammed shut from swollen flesh, with fingers tight and unbendable from poison bloat. Yukoners preferred winters to summers, the frost killed the flies.

Married operators received an allowance to compensate for the added cost of buying food in Whitehorse but the 20 or 30 single operators who ate at the the D.O.T. barracks were on the RCAF Labrador ration. Dietitians decreed that, for health's sake each man must eat two ounces of cheese and one can of evaporated milk per day. This meant our barracks received from 600 to 900 cans of evaporated milk each month. Since no one drank all his ration in a couple of months I had cases of evaporated milk piled to the ceiling, and even though I told the RCAF to stop sending it, regulations being irreversible, the milk kept coming.

In 'civvy' country all evaporated milk and cheese had been requisitioned so civilians couldn't buy any. Now that the statute of limitations has expired I can confess that I swapped my surplus at Gordie's Meat Market and at T and D's General Store. In exchange I got meat and fish not included in the Labrador ration, vegetables and fresh fruit when available. It was even-Steven. Now and then I'd send a crate of fruit or vegetables up the line to the D.O.T. boys at Snag, Aishihik and Teslin.

I figured I deserved a medal but when I told Harry Allen what I was doing he laughed his big laugh and said, "Don't tell anyone else or the RCMP might arrest you for trafficking in government issue." All Jeff ever said was, "I don't want to know anything about it."

It was wartime, life was cheap. The fighter pilots were kids of 18 or 19 years, any older and they began to figure the odds - - no good for fighting. One day two fighter planes of a group of three came in from Watson. The third member had been held up and came in later. He swept

across the airport then began a slow roll, a beautiful heart stopping maneuver when performed at an altitude of 50 feet. A slight miscalculation and the plane hit the asphalt at about 500 miles an hour. The only pieces large enough to need a forklift were the engine and the molded seat with body still attached.

Next morning one of the young pilots who'd come in earlier explained that this friend had forgotten that a plane carrying an auxiliary belly tank handles slightly differently than without and, even though I said I'd take his word for it, insisted on demonstrating after takeoff that a slow roll at 50 feet altitude after a steep dive is a beautiful thing to see.

Dusty Weaver was operations chief. He was an excellent operator, something of a boomer, and a tonic whenever he came to visit. His fund of stories was limitless as was his liking for poker. Morale always rose when Dusty was in town. In the early days Whitehorse acquired a reputation as a bottleneck. Our operators resented the slur because they didn't think they deserved it. Because of atmospherics, shortwave direct to Edmonton could go out for days at a time, so we had to use underpowered longwave, station to adjacent station, the result being long delays. Then inexplicably shortwave might clear and be good for days, hours, minutes, no one knew for how long, and traffic could be cleared. Since Whitehorse relayed Alaska traffic and generated most traffic southbound, when signals went out the result was pileup and the name bottleneck grew.

Dusty arrived one day unannounced and that evening slipped over to the operating room. When I checked in next morning the graveyard operator filled me in on what happened. Dusty, he related, had asked if he could sit in.

Nothing could be heard in the earphones but the roar of static. It had been like this for days and messages were stacked up. Then suddenly Edmonton came in loud and clear on shortwave. Swiftly Dusty made contact. Go ahead Edmonton, send your traffic, send fast, QRQ, this is what we've been waiting for. Now to show the boys how to clear traffic, how to deal with a bottleneck.

Traffic began to flow. Message 1 sent and acknowledged, message 2 and into message 3 when suddenly another signal blotted out Edmonton.

"CQ CQ CQ de VFDE VFDE VFDE QRU?"

What was this? It was Fort Nelson. A general call to all stations. "I have no traffic. Do you have any traffic for me?"

Dusty waited for the interfering signal to come to an end then told the Nelson operator to stay off the band while Edmonton and Whitehorse cleared their traffic. Such are the vagaries of celestial interference that Nelson apparently could be heard but couldn't hear what Dusty had said. Dusty told Edmonton to resume sending, send fast, traffic moved, one hotshot operator sending another receiving. It was exhilarating. Then -

"CQ CQ CQ de VFDE VFDE VFDE QRU?"

Again Dusty told the Nelson operator to stay off the G-- D-- circuit so he could clear traffic but still no acknowledgement from Nelson.

Again Edmonton started sending. My informant, the graveyard shift operator said Dusty kept muttering to himself and when the interfering signal came again, Dusty took off his earphones, rolled a Bull Durham cigarette and stared into space.

Just as well because the atmospherics rose to a roar, blotting out both Edmonton and Fort Nelson. Dusty filed the three messages he'd cleared, only 47 left, and went back to the barracks, puffing silently. I told the graveyard operator about Dusty's temper and cautioned him not to make any comments.

Next morning before Dusty took off, he said to me, "There'll be no more talk about bottlenecks."

I said, "Good. Sit in any time, Dusty. Where to now?"

"Oh, back to Edmonton, of course."

"And?" "A short stopover at Nelson on the way."

Those were the days.

I had occasional visits from the American Secret Service. We exchanged a lot of traffic with Armed Forces Radio Alaska and because much of it contained secret instructions we kept the Japanese monitors in the dark by encoding the messages. I had received by courier two large manuals, one for coding and one for decoding, together with some padlocks without explanation.

All Japanese-Canadians had been unceremoniously removed from Whitehorse after December 7, 1941 so thereafter we never saw anyone but bonafide Caucasians, Blacks and Indians, none of whom looked like a spy to me, so I just left the code books on my desk for easy reference. I shall never forget the look of mingled horror and disbelief that swept across the face of an agent of the U.S. Secret Service who showed up one day and asked to inspect my security arrangements. Nothing I said seemed to reassure him.

Yukoners celebrated everything with a bottle. If someone went outside they had a farewell party; if someone came in from outside they had a welcoming party and if no one came in or went out they had a status-quo party. That I, in this milieu, should acquire a drinking reputation calls for an explanation.

Prior to going north I'd bought a 35mm camera. As a hobby I planned to develop and print my own pictures so I had with me on the flight up a supply of developing powder, fixer salts, toners and various other items. I lacked the knowledge of how to develop and print but Earle Porter said he knew how and would show me, also that we'd need coloured bottles to hold solutions. The Doc, overhearing said he would see that we got bottles.

At the end of day one in Whitehorse we had three empties, a rye, a scotch and a gin. We put in our solutions and placed them on a shelf in my hotel room. By day two

we had three more empties which we dealt with likewise. By day three we had more empty bottles than we needed but because the Doc was getting hard of hearing by now we just let him add to the total.

Meanwhile I conducted myself in a normal fashion. I paid no particular attention to Homer Mears (Whitehorse Inn manager) wife Kay who looked after the rooms although she looked at me strangely from time to time, which I put down to an idiosyncrasy. Homer too was most solicitous about my well being, which I thought was darned decent. About this time they carted Doc off to the hospital in a comatose condition.

Months later when my wife and I got to know the Mears better I learned that, in the space of a few days, I had become an object of awe as a drinker who could consume bottle after bottle of hard liquor without showing any signs. It was of course the bottles on the shelf, some full, some empty, some half gone, of photographic solutions. I really liked the Doc. So, wherever you are Doc, if you're still with us, I hope you get the monkey off your back.

Mrs. Burton was cook at the single men's barracks and she was a good one. Her food tasted better than what you got downtown so we had quite a few transients eating with us. They were all D.O.T. men, the steel crew, or operators and technicians heading to satellite stations but staying in Whitehorse a few days while I arranged transportation. We charged 50 cents a meal and after a while it began to add up. When I was in Edmonton for a few days, Jeff Williamson, who was the boss, said any money collected should be remitted to Treasury, Ottawa. I said that since the food being served to the transients was rations we should use the money to buy food downtown to replace the rations, so to speak. Jeff said, "No, send the money to Treasury."

Since I was in the office for several days the subject kept coming up until Jeff said, "Travers, you're worse than the itch."

My attitude towards regulations must have been formed in those early days because we never did get around to remitting moneys to Treasury and Jeff let it ride. One reason we all liked Jeff was because of his standard priority which was, - keep the boys happy.

Characters gravitated to the Yukon. Either that or the Yukon turned normal people into characters. Whatever, oddballs abounded. Take for example the curious case of the thieves who stole military supplies on Fridays.

The amount of equipment in warehouses around Whitehorse was enormous and security for the most part consisted of padlocks and barred windows. An epidemic of thievery broke out that had some strange aspects. Only one building was being burgled, the amount of equipment taken indicated an organized gang at work and the thefts always took place on Friday.

The U.S. Army had a tracking device that resembled the crab used with a Link pilot trainer except that, in this case, you attached the instrument to a bedplate of a Jeep. As you drove around, a moving ink stylus traced your twists and turns on a map. So if you didn't know where you were you could look at the stylus and it would tell you. An ideal instrument for the desert. There were two of these exotic devices in Whitehorse and the thieves had taken one of them.

Because thefts were localized and took place on Fridays the military police were able to set up an ambush. They secreted themselves in the building behind crates and waited. It was pitch black when the thieves arrived but one could hear the padlock snapping open, then boxes being moved. The police flipped on all flashlights and charged. There was much clutching and grabbing but when order was restored there was no one there except red faced police. In spite of a search no thieves were found.

Military police are by nature dour souls. They have a poor sense of humor and when laughed at can be very mean indeed. They regrouped and waited grimly for next Friday when they were more successful and caught the thief.

The following morning my office phone rang. A very close friend of mine (let's call him 'H') was in RCMP headquarters, he had a problem, would I come down. My friend 'H' had an employee, Jimmy by name, and Jimmy was the thief.

He was a gentle wispy lad, blond, or colorless perhaps would be closer. Jimmy was always pleasant and well liked when noticed. Jimmy had no truck but entertained vague notions about taking his loot down the highway to 'outside', not right away but when the war was over. He'd never heard of highway patrols or road blocks or who would buy instruments like terrain trackers with U.S. markings all over them.

When the military police saw what they had caught they turned him over to the RCMP, and having recovered the stolen goods, declined to prosecute. The RCMP asked my friend 'H' for suggestions and he in turn asked me. 'H' just kept shaking his head. "Fridays were his day off, you know," he kept saying by way of explanation.

Jimmy spent a few months sweeping out RCMP cells and after discharge disappeared from view. Some years later he paid me a visit in Regina. He was a loveable chap, he smiled a lot, not a deep thinker but always cheerful. Jimmy lived with his father and mother on a farm nearby and ordinarily would have stayed there, your average citizen. But the war intervened and Jimmy surfaced in Whitehorse and became exposed to whatever it was that the Yukon did to otherwise normal individuals. He was one of many. Oddballs.

I never regretted going north. My wife and I made friends we still cherish. There was a kinship that has stood for more than 40 years. Some are gone now and we have a sense of loss.

In 1945 I received a letter from an operator I'd known 'outside'. He wanted to know what it was like in the north and should he apply for a job up there. At the time I was too close to events to know how to say how I felt about the Yukon, what were the words to describe my feelings for the men I worked with and about all the things that happened to us. Now, finally, I've got it down, some of it, four years compressed into a few pages.

The Yukon was very good to me in many ways. Two come immediately to mind. Our daughter Sylvia was born in Whitehorse and my sourdough father-in-law started calling me 'pardner'. I thought it best not to tell him about indoor plumbing, Hershey bars and coffee breaks.

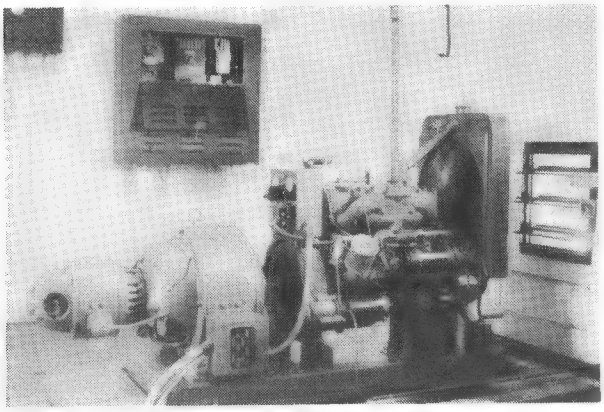
POSTSCRIPT:

I saw Miles Canyon above Whitehorse before men tamed it. Think of a glacial river funnelling into a gap formed by two solid rockfaces of granite. Think of torrents of white water after the spring thaw surging through a narrow tortuous channel.

When the Klondikers of '98 steered their makeshift boats and rafts into the opening they aimed for the crown of water in the middle and if they managed to stay there until emerging three miles downstream above Squaw rapids they might say, like my father-in-law, "never again," but if they slid off the crown towards one of the walls their chances of survival fell rapidly to zero.

When I heard that a hydro dam had been built across the river and that water was backed up into the gorge so that pleasure boats could cruise on the still surface I had the same feeling I have when I see a lion in a cage or a bear in a stockade.

If there are Klondiker ghosts in the canyon they must feel ill at ease in the docile waters. My wife and I have revisited Whitehorse and note the many changes. I think we preferred things the way they were before progress took place. Our memories are fragile.



Typical Radio Range Power Unit.
Gasolene powered engine driving a 110 volt generator

Typical radio range service road in the Yukon

THE RADIO OPERATOR

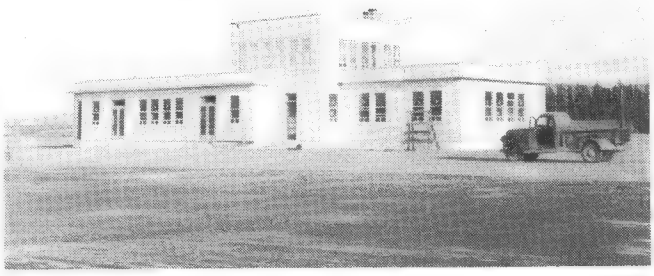
by Russell Travers

To be a competent radio man was a great thing. It was like belonging to a secret society. The membership was exclusive. We knew each other's fist like we knew a secret handshake. There was always a hierarchy but even if you were at the bottom you knew you were a brass pounder and all that that implied.

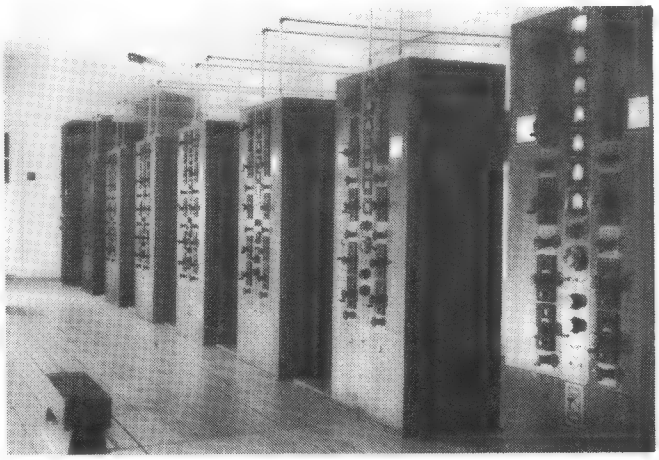
When I was younger I met a man who called himself a boomer. He had pounded brass all over the continent. He took guff from no one. If he didn't like the boss he'd quit and move on to the next town. He was so good and there was such a demand for fast telegraphers that he could always get a job. Now it was over and he lived with his memories. He still thought of himself as a brass pounder and he was very proud.

Operators I've known were like that. They practised an arcane skill and while it lasted they were royalty.

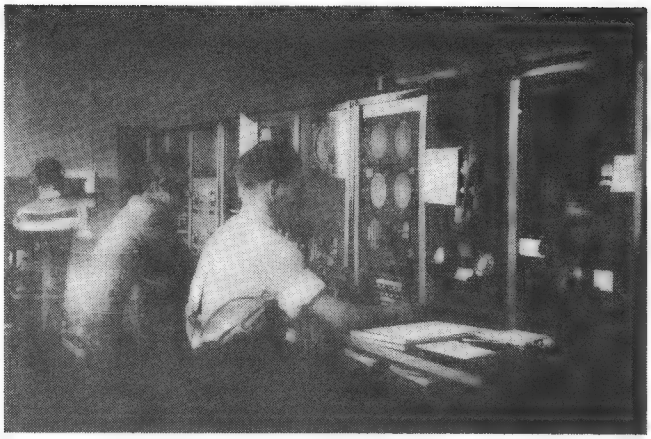
Most of us went on to become technicians, officers in charge, managers, even engineers but it wasn't the same. Almost anyone could be a manager but to be a Radio Operator you had to know the secret code.



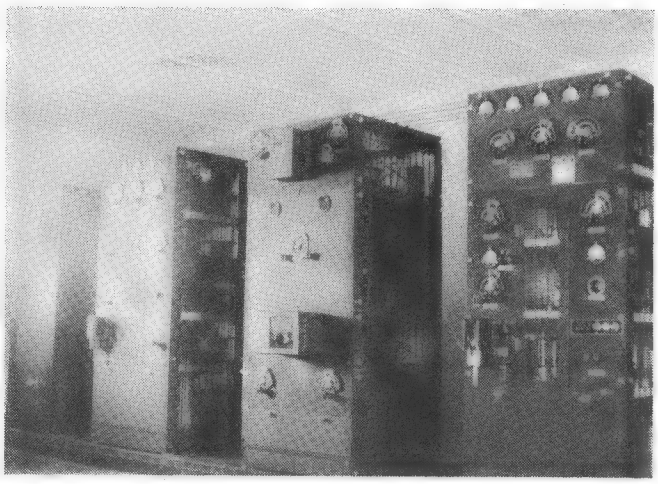
Whitehorse Airport Administration Building 1942
Where the Airport, Radio Range and Metrological offices were.



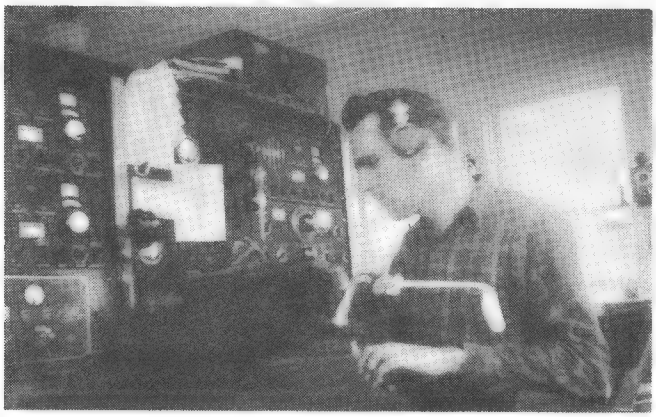
Bank of 7 RCA AT3 - 300 Watt Transmitters and
one RCA 260B 2 Kilowatt Transmitter.
Whitehorse communications building - 1942



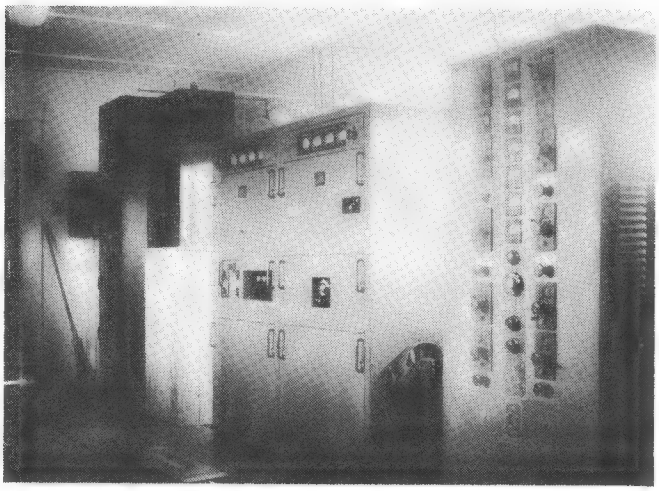
OPERATING EQUIPMENT - 1944
Three Operating "Positions" at Edmonton Radio Range
L to R: Position #1 - Ted James CW Position,
Position #2 - Archie Wicks - Air-Ground control
Position #3 - Bud Ostrom radio range position.



A STANDARD RADIO RANGE TRANSMITTER STATION
L to R: Control Unit, #1 Range Transmitter, Gonio Unit
and #2 Range Transmitter

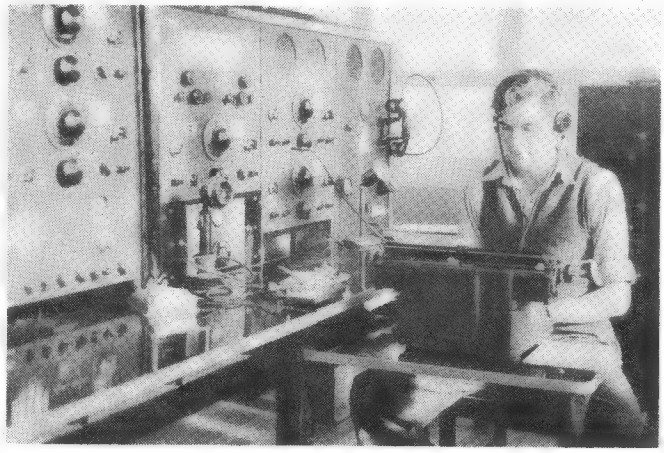


Operator Jim Semper at work
Watson Lake Radio Range Station - 1944



TYPICAL COMMUNICATION TRANSMITTERS
AT AN INTERMEDIATE STATION
Centre - AG500 4-channel 500 Watt Transmitter and a
2-channel AT3 300 Watt Transmitter

Whitehorse Radio Range Station - 1944
All three "positions" in operation.
Operators: Bob Williamson, Russ Travers
and two other operators busy at the Radio Range monitoring position



Operator Keith Morton busy copying messages
Teslin Radio Range Station - 1944

GRANDE PRAIRIE STAFF - 1944

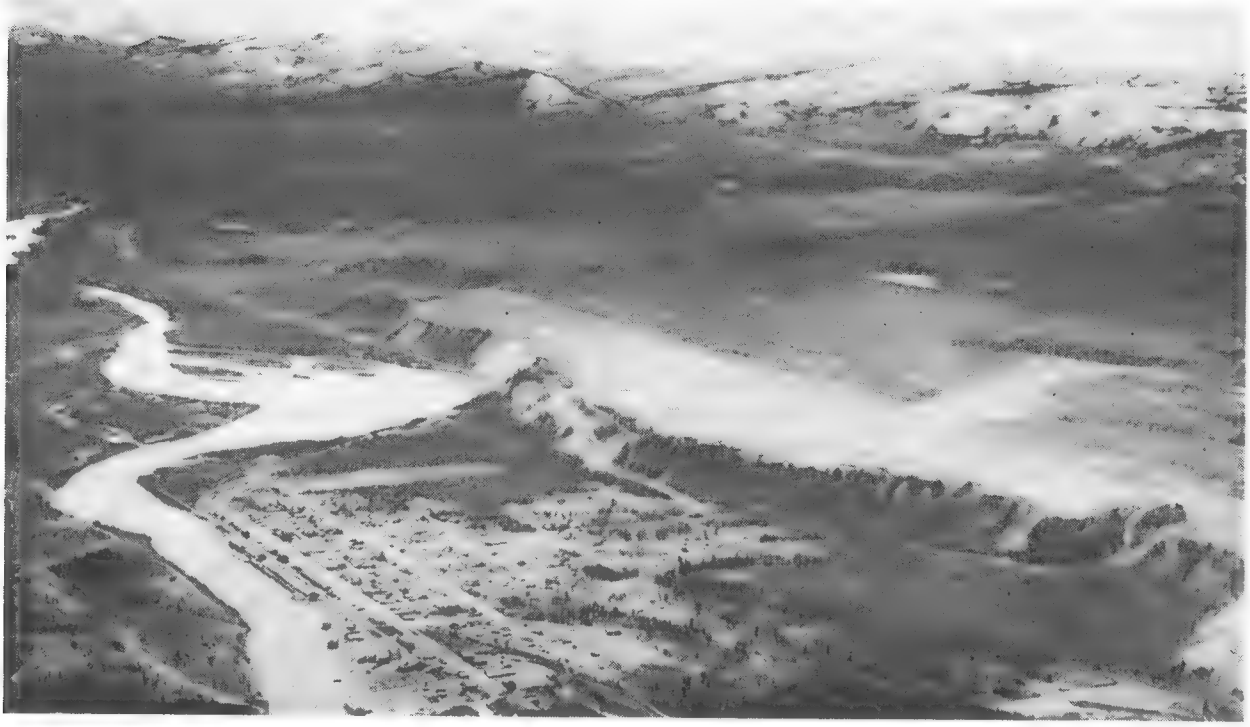
Rear: Arnold Bouska, Tom Gilchrist (meteorological), George Gauld, Alf Dawson, Kevin Coyne, George Ericksen, Doug Woolven, Bob Dawson
Front: Bill Bailey (meteorological), Alberta Bromley, Alex Krutko, Alfred "Chil" Flick (OIC), Harold Bowden, Max Bonitz

RADIO OPERATORS - ca 1946

Rear: Frank Grant, Max Hubbard, Herb Foxcroft, Ivan Boyd, Bill Stunden, Stan Dear.
Center: Neil Palmu, Ed Ross, Curt Hart, Warren Johnson, Bob Williamson seated.
Front: Jim Marr, Herman "Hoops" Hooper, Russ Clemo

WHITEHORSE RADIO RANGE STAFF 1943

Top row: Ole Antilla, Tony Scott, Hugh Martin, George Goodwin, Ray Oliver, Larry Nelson
Center row: Ed Ross, Vince Robinson, Gord Harding, Russ Travers OIC
Lower row: Jimmy Marr, Frank Grant, Stroy Leith, Warren Johnson, Bob Williamson, Max Hubbard



Whitehorse, Yukon Territory with airport situated on the bench above the townsite, 1942

THE RISE AND FALL OF THE AIR INDUSTRY AT LETHBRIDGE

By Ray Dick - Lethbridge Herald Staff Writer

Taken from the Lethbridge Herald 1960.

Russell Ryder Travers is a man who has seen the rise and fall of air travel in Lethbridge.

He was one of the radio men at the old north Lethbridge airport when the Department of Transport (D.O.T.) was mapping out the cross-Canada airlines routes.

Now he is the officer in charge of the radio branch, Department of Transport at the Lethbridge airport.

"At one time," he said, "Lethbridge was an important part of the air network system - mainly because of its closeness to the mountains."

Earlier types of aircraft, he added, did not have as long a range and it was necessary for them to land as soon as possible after crossing the Rockies.

Since the population has greatly increased in Calgary and Edmonton and the development of long range aircraft, the shift to the north has taken place.

Travers is 50 years of age and he was recently presented with a 25-year service pin from the Department of Transport.

Born in Calgary, he moved to Vancouver as a child and spent most of his youth there. In the 1930s he worked in several places in Ontario and then joined the staff of Marconi on the west coast.

From 1935 until 1937 he served in the Canadian Army and then joined the staff of the D.O.T. at Ottawa. He was posted to Lethbridge the same year and remained here until 1939.

He worked in Swift Current, Regina and Whitehorse before being posted back to Lethbridge again in 1948. He has been here since.

Travers says he was in Lethbridge when Trans-Canada Airlines began its flights about 1938 and also when the new airport was built about the same time.

In those days few aircraft had instruments for blind landings, he added. "They flew by the seat of their pants."

There were a few thrills in those days because the old airport was built on sloping ground and when the planes landed they would go out of sight. "We would have to wait until they taxied back before we were sure they hadn't crashed."

"At one time the airport was fairly busy because it was on the main east - west route." he said. "Now air traffic is limited to one Trans Canada Airline flight per day, plus a few private and air force aircraft."

Travers is a former president of the Henderson Lake Golf Club and is now vice president of the Lethbridge Curling Club. He is married and has two children.

REPORT OF O.T. HOWEY

Department of Transport Radio Operator, acting as driver of one of the four trucks driven from Edmonton to Whitehorse and other points on the North West Airway. (Dec 3, 1942)

This is copied from the official report by O.T. Howey to the Department of Transport.

Other drivers were:

Gilbert Wall, Art Taylor, Des Carty, Jim Connolley.

Each range station requires a service truck. During the period of construction such trucks are very useful and necessary for the transportation of personnel and light materials. Therefore, it became advisable to send such vehicles into the Aishihik, Snag, Teslin and Smith River Range Stations, while they are still in construction period. In as much as the temporary Alaska Highway had been completed as far as Whitehorse, it was decided to drive the Chevrolet half-ton pick-ups as far as possible to their destinations. The two for Snag and Aishihik were to be left at Whitehorse and later driven in as range construction crews required transportation.

Before starting, there were two points where difficulties were anticipated. The Peace River Bridge, beyond Dawson Creek, had been taken out by moving ice and the ice at Teslin Lake was considered unsafe. However, as it was necessary to get across the Smoky River, between High Prairie and Grande Prairie before its ferry was laid up, an immediate start became important. Actually, neither point offered any difficulty, both of them having been put back into service shortly before our arrival.

The speed and efficiency with which the U.S. Army Engineers have maintained the road, to say nothing of the stupendous task of making the highway in the first place, within approximately eight months, will always remain as a monument to the industry and skill of this group of men.

Less than a year previously, the vast majority of the route had been no more than a casual assortment of trapper's trails, seeing only dog teams and an occasional pack horse. Now trucks, large and small, loaded all the way from two to 15 tons are making exceptionally good time along the entire length. Barring a few instances where steep grades were unavoidable - for a temporary road - one experiences no more driving hardships than in driving to the Pacific coast. It took little more than half a year to modernize the Trail of '98.

The 'convoy' left Edmonton at 1630 hours, November 23. A light snow was falling at the time and it gradually increased until at Clyde, windshield wipers were going steadily and visibility became a matter of yards. However, after dinner at this point, it was decided to go on to Athabasca, due to better accommodations and the fact that a mere 50 miles was not a very good showing for even a short day. One car had been thrown into the ditch by loose snow earlier in the afternoon but the increased fall now had the effect of giving better traction. This second 50 miles was uneventful and with light traffic and the snow gradually ceasing the trucks were garaged in Athabasca early in the evening.

Nine o'clock next morning saw the four again on the road, after having created somewhat of a disturbance in town. We assisted the Chinese cafe-keeper in opening shop around seven a.m. and it later became necessary to stand in the center of the road and serenade the garage owner in order to get the cars out of storage. Evidently Athabasca doesn't believe in getting under way much before noon.

This was to prove one of the longest days of the trip. By driving until midnight, we were able to add another 271 miles to the 100 already on the odometer. The intention had been to stop at High Prairie for dinner, but on arrival there, it was found that the chances of the ferry continuing operation across the Big Smoky River were not very good. In conversation with various southbound U. S. Army drivers, it appeared that the river was freezing rapidly and while the ferry had run that day, it might be frozen at any time. A few hours delay might mean a complete hold-up or a long and tedious detour. Therefore the only recourse was to go - in the hope of getting over at least first thing in the morning if not that night.

Cy Bromley with one of the delivered "Convoy" trucks.

Out from High Prairie, snow began falling in earnest on icy roads. This meant slowing to practically a crawl, with even the cars switching from side to side and threatening to make us spend the night extricating ourselves from 10-foot ditches. However, after a rather painful 50 or 60 miles, the road became sufficiently padded to allow a slight increase in speed and it was a distinct relief to reach the partly frozen Smoky.

The ferry had stopped running for the day about 45 minutes prior to our arrival. Visions of a comfortable room at a Grande Prairie Hotel vanished and it meant sleeping bags on the floor of the ferryman's shack.

Therefore, after extracting a promise from the ferry operator that we could get across early in the morning, we bedded down. His shack was the smallest of its kind that could be imagined but somehow six of us found lying room on the floor.

The shack contained, of course, a wood stove with the usual failing that exactly two and one half minutes after turning in, it proceeded to burn out. This, coupled with the fact that the temperature being a good 20 degrees below zero F and some misguided "architect" having insisted on raising the floor about two feet off the ground - thus allowing for much more than adequate ventilation - made the sleeping bags very welcome and resulted next morning, in a long and rather heated discussion as to whose particular duty it was to start the fire. Exasperated, the ferryman himself settled the discussion with the help of a good quart of kerosene. During the clearing of smoke from the resultant explosion, every one arose with alacrity.

Some two or three hours chopping were necessary to get the ferry free from the imprisoning ice before the trucks could be loaded. The barge was so clogged with ice and the river's current so far reduced, poling was necessary to get across. We very definitely worked our passage.

The remaining 28 miles into Grande Prairie was a pleasant change from the night before. The long straight piece of pavement-like road enabled us to do the first bit of real driving possible.

After lunch we pushed on quickly, making for Fort St. John by nightfall. Unfortunately the run from Dawson Creek to St. John was made after dark, this serving to make more intense the confusion that even by day must be bewildering.

Between these two points, the eventual Alaska Highway is partly in operation and partly under construction. Where it is completed, one travels at 40 miles an hour to keep up with the traffic while passing is a steady stream of great six-wheel army trucks loaded with everything conceivable. On the rest, one has a variety of driving experiences. One minute it is playing musical chairs round long lines of gravel piles down the center of the road to evade all the varieties of road machines. The drivers of which, incidentally are blandly oblivious to the pressure of all the traffic. The only thought in the mind of a bulldozer driver is that he isn't going to stop; the oncoming truck driver can do anything he wants, to get out of the way just as long as he does it. At another instant, one finds himself on a one-track hog's back, looking 20 feet down on either side at trucks loading gravel. From this it is across a half-mile bridge, wheel tracks formed by planks end to end and approximately 16 inches from these planks to the edge of the structure. There is no guard rail to obstruct one's view of where one would land as a result of not paying strict attention to the business at hand. There is certainly no difficulty in keeping under the five-mile-per-hour speed limit over the bridge. From this, the temporary one-way trail leads up an almost prohibitive grade to dip again almost perpendicularly into what seemed in the darkness a seething mass of steam and smoke shot with the light from floods and burning fires, while all around tractors snorted in the heavy timber, trucks growled and screamed up and down tortuous grades to gravel pits and pile drivers kept up their monotonous chant. From this seemingly meaningless confusion, even now one can see emerging what one day will be considered the engineering marvel of the continent.

All next morning was occupied with the task of getting started. One tire had gone flat during the night, we needed air in the others, we needed oil and we needed gasoline. The bottleneck was the local garage, whose owner, due to the still-expanding business needed three times the staff and twice the room. In consequence, we felt that getting away by noon was accomplishing something.

The highway swings to the north and west and soon reaches the foothills. This no doubt has been done to pass the extensive muskegs around Fort Nelson. Climbing steadily through the hills with countless hairpin curves, switch backs and grades until one lost all sense of direction. Progress slowed greatly because in many places, especially where a long cut had been necessary alongside river banks and hills, the road was so narrow as to make it definitely a one-way proposition. This condition was coupled with the sharp turns that gave a person no opportunity to negotiate on the spur of the moment the passing of any southbound traffic. Time after time one found himself at a loss as to what he should do if the situation presented itself. It would be literally impossible to the descending truck to back up the hill again and in many places equally suicidal for the ascending vehicles to negotiate a return trip down the grade backwards. Fortunately traffic on this section was very light during this period.

One learned to pay close attention and to obey explicitly all road signs. The worst of the hills and curves were well marked and speed limit given. For instance, the approach to the Sikanni Chief River is very complete by informing all trucks that they must proceed no faster than five miles an hour and do it in first gear. Shortly beyond the sign the road turns something more than 90 degrees to the left and drops so suddenly that one must be well advanced on the brow of the hill to see the bottom where everything seems to disappear into timber. This is a complete half-circle curve with the beginning and end of it 15 to 20 feet apart. From here the road dropped so sharply that even in low gear, wheels began to skid, to take another turn to the left and put one directly onto a one-way bridge.

Across this, we stopped for dinner in a little temporary cafe. On one corner, a notice over the signature of the local commanding officer informed members of the U. S. Army that the premises were out of bounds. The reason was self evident on the inside. However, if one is hungry enough the surroundings are negligible. Fortunately, the food was a vast improvement on the environment although it must be admitted that it was rather difficult to determine the type of meat served. At any rate, it provided a topic of speculation for the remainder of our eventful trip into Fort Nelson.

The terrain became steadily more level from this point on, the vicinity of Fort Nelson being marked by the Muskwa River, now bridged by a characteristic one way structure. This fast-moving stream with its thin ice had two years previously suspended freighting operations to the embryo Fort Nelson Airport, and only last winter had been a bottle-neck for the highway construction. Now it is temporarily defeated, defeated that is, until rushing ice in the spring may send the bridge swirling into the Nelson River. However, before this happens, gigantic loads of freight will have passed on down the highway and into Fort Nelson itself.

Departure from Fort Nelson was again delayed. This time, it was due to a temperamental air compressor engine that refused to perform its duty without a few hours pampering and warming. The day had advanced to mid-morning before getting under way.

Once again the road plunged into low mountains, twisting and turning, rising and falling to search out passes and follow river valleys. At Mile 116, the road that for some miles had been following an old river bed by crossing and recrossing a small creek in its center, suddenly disappeared under two or three feet of broken ice and water. An overflow had backed up over about 150 yards of the highway. As we arrived about four o'clock in the afternoon, large army trucks were attempting to cross by literally smashing their way through the ice and water below.

As an enraged bull, they roared over this short approach and plunged into the churning water until only the tops of the wheels were visible. Careening crazily from side to side, one moment almost broadside to the road, at the next, coming within a hair's breadth of upsetting, front wheels were thrown clear of the water to fall back crashing on to rocks and ice below, the driver being hurled about in his cab like a small piece of the mechanism that had come loose.

The possibility of getting our small cars through all of this did not seem very promising, However, after waiting for some time until the large machines had smashed the majority of uneven ice, it was decided to attempt the crossing with one. At least, the opportunity of getting a tow was of the best.

As we had more or less anticipated the car stopped dead about the middle of the obstacle. However a chain had already been laid out with one end hooked to a heavy army truck. In a very short interval, the free end was fastened and the truck soon stood on the far side of the obstacle with water freezing before it could drip off brake drums etc. For this reason it became necessary for us to push on while the other three units waited for light to get through.

After seeing the first car disappear over the opposite river bank the other three cars turned and headed back for a construction camp, the drivers to have a late supper and spend the night there.

Next morning, an American Army road crew had preceded us to the creek and on our arrival were blasting away ice below the hole to drain the water from it. During the past afternoon, two trucks had failed to make their way through and were by this time solidly frozen in. It was not until large charges of dynamite had been touched off very close, that they were able to be towed out.

By about three o'clock in the afternoon the water level had been sufficiently lowered to allow us to get by, but even so, towing was again necessary.

In this particular area, the road is quite narrow and due also to its mountainous character, it was decided to forego any night driving. We stopped at another construction camp, at Mile 165, for supper and the night.

A very early start next morning put the convoy into Smith River Range site by mid afternoon. At Mile 232, a spur turns off and wanders for 25 miles through some of the wildest country imaginable to this point. It is, of course, merely a freight trail but even at that, it required two and one-half hours to cover the short distance.

A moderate snow began falling on our arrival at Smith River. This, with the fast approaching dusk, made the return trip out to the highway most hazardous. Therefore all possible preparations were made for an early morning departure.

As one truck was to be left at Smith River, the remaining two left about eight a.m. and by five o'clock that afternoon were in Watson Lake. The first one to get through MacDonald Creek was still here, a delay being necessitated to straighten a steering tie rod. The two newest arrivals were carefully checked and found to be in first class shape barring a slight sluggishness in the brake mechanisms. This had been caused by water freezing on brake drums. However, repairs were not possible at this point, but the most hazardous part of the trip lay behind.

Plans for an early departure next morning were spoiled by fuel-line trouble. One of the trucks had accumulated some ice in the bottom of its fuel tank, requiring a delay until noon. Thus Teslin Lake was not reached until nine that evening.

Crossing of the ice of a small bay of this lake had for some time been the largest obstacle of the entire route. Various convoys had either to turn back or wait patiently for the water to freeze to a greater depth. Before the army had stopped traffic over the ice, five trucks had plunged through into 12 to 15 feet of water, their positions now being "buoyed" by five small spruce trees planted in the ice. Not until actual arrival at the lake did we have any direct information as to our chance of crossing.

Fortunately, that very day, permission had been granted to use the ice between nine a.m. and five p.m., by one truck at a time and with a load limit of eight tons. Two soldiers - one on either side of the half-mile bay - were dispatching alternately in such a manner that only one was on the ice at any time. The larger trucks were co-operating with a will and interpreting literally the northern adage for crossing thin ice "Keep the door open and drive like Hell".

It was a tremendous consolation to be in a small truck at such a time. If the larger ones were making it alright, there could be no doubt about our two-ton gross weight crossing. Nevertheless, one and two inch cracks crisscrossing the driveway were anything but reassuring.

The 130 odd miles from Teslin to Whitehorse were possibly the most surprising stretch of all. One would expect this to be very mountainous. As a matter of fact, it is one of the most level sections of all and certainly the straightest. An average of 30 miles an hour was possible, while frequently reaching 40 and 50 miles an hour.

Thus, at 2:30 p.m. on December 3, 1942 the two remaining trucks were parked at the Whitehorse Airport with some 1,600 miles having been covered since November 23.

TRIP SUMMARY:

Courtesy of E. Brown VE310P (Sept 1989)

Date	Leave	Time	Arrival	Time	Mileage	Elapsed Time Hr	Min
Nov 23	Edmonton	1630	Clyde	1820	50	1	50
	Clyde	1925	Athabasca	2145	49	2	20
Nov 24	Athabasca	0840	Slave Lake	1215	91	3	35
	Slave Lake	1250	High Prairie	1640	82	3	50
	High Prairie	1820	Big Smoky F.	2345	98	5	25
Nov 25	Big Smoky	1120	Grande Prairie	1225	28	1	05
	Grande Prairie	1415	Pouce Coupe	1715	89	3	00
	Pouce Coupe	1815	Fort St. John	2100	60	2	45
Nov 26	Ft. St. John	1145	Sikanni River	1645	121	5	00
	Sikanni River	1735	Fort Nelson	0100	150	7	25
Nov 27	Fort Nelson	1115	Mile 107	1920			

Due to being held up by MacDonald Creek overflow it was necessary to return to Mile 107 from 116. At least an hour was lost at a creek and the distance between 107 and 116 covered twice. In order that the mileage and time may be computed accurately an adjustment is necessary thus:

					107	6	00
Nov 28	Mile 107	1515	Mile 165	1750	58	2	35
Nov 29	Mile 165	0830	Mile 232	1215	67	3	00

Arrived Smith River 1515 on 29th and departed 0825 on the 30th. Inasmuch as this run of fifty miles was actually not on the route, this distance and the five hours required for its coverage is not included in the summary.

Nov 30	Mile 232	1025	Watson Lake	1620	135	6	05
Dec 1	Watson Lake	1225	Teslin Lake	2130	182	9	05
Dec 3	Teslin lake	1015	Whitehorse	1420	123	4	05
	Totals	Mileage 1500		Time 70 hours 05 minutes		Average 21.4 M.P.H.	

YUKON SOUTHERN AIR TRANSPORT

J.W. (Jack) Baker, Radio Operator - Watson Lake, B.C.1939-1942

Jack Baker wrote this account in 1984 in Fort St. John, B.C. where he is retired.

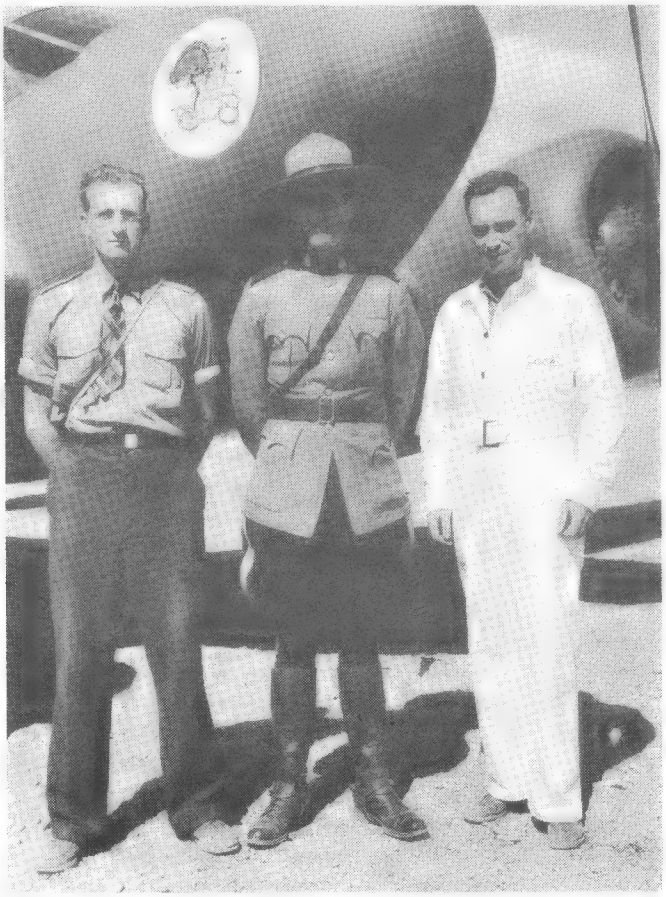
I was a radio operator at Watson Lake, - 1939 to 1942 - for Yukon Southern Air Transport, before the Department of Transport arrived with construction of the airport. One of the department's operators was sent in ahead of the radio equipment and he stayed with me. His name was Frank Perrier. When radio was all turned over to the Department of Transport and it had its own location the fellow in charge was Art Taylor. I don't think Art was an operator, but he could have been. The only other names I knew were Leo Martell, who I believe was at Fort St. John, and Charlie Stredulinsky, who was at Beatton River Airport. I never met either one.

You might perhaps wonder how I came to be at Watson in 1939. I had been a trapper in the Mackenzie Delta for about eight years. I left the Arctic in 1936 and went to Fort Liard where I took over a small fur trading post for Northern Traders Ltd., of Winnipeg. (They had about 10 posts along the Mackenzie River and the Liard, in opposition to the Hudson Bay.Co.) One winter day in early 1938 a small plane stopped on the river near my post and the pilot asked if he could stay the night. I told him I'd be glad of the company. It turned out he was Grant McConachie, who became founder of Canadian Pacific Airlines in 1942. Anyway, Grant was interested that I had built a small radio transmitter and fashioned a hand key, and had managed to learn a little Morse code out of an old tattered Radio Amateur Handbook that I found in my travels. He asked me to leave Fort Liard and go to Watson Lake and open a station for radio and weather reports and other data.

The Northern Traders sold out in 1939, but I remained until late summer at Liard, and then made my way home to Winnipeg, arriving in the fall. Naturally there was a great reunion, all our friends and relatives wanted to hear what the prodigal son had to say. But the bright lights didn't look any better after 10 years than they had before, so after Christmas I made plans to head north again. I thought I'd see Grant McConachie first and if that deal had fallen through I would make my way back to the Mackenzie Delta.

I took the train to Edmonton and found Grant. He was delighted and wanted me to leave right away for Watson Lake. I got a ride to Fort Nelson on the little mail plane that used to go there every two weeks and had to make a quick trip to Fort Liard for some personal things, so I borrowed a dog team from a trapper I knew and was back to Fort Nelson in 10 days with my whipsaw, broadaxe and sundry other items. Pilot Ralph Oakes picked me up, and landed me at Watson Lake in early February 1939, where Frank Watson and a big fellow named Vic Johnson met the plane. Frank and Vic had already got out a set of building logs and had pretty well completed the station, which helped considerably.

Jack Baker operating radio station for Yukon Southern Air Transport's office at Watson Lake, Yukon 1939



Art Taylor D.O.T. Radio Technician
RCMP Constable George Cameron and
Jack Baker of Yukon Southern
Watson Lake Airport 1942

The company had sent in radio equipment, a short wave transmitter and receiver, together with storage batteries and a gasoline motor generator. And the Dominion Weather Service had sent in weather equipment including a recording anemometer (wind speed indicator), barometers, thermometers, rain gauge, cloud atlas and other items.

Frank died soon after and Vic only stayed with me until we got out some more building logs, made some lumber with the whipsaw, and built two more buildings. Then he went prospecting and I was alone. Part of my duties required me to send out three synoptic weather reports daily, one at four a.m., one at 11 a.m. and one at four p.m. These meant taking cloud observations as to type, estimated height and direction of movement. Barometer readings together with their tendencies - as rising, falling, steady - maximum and minimum temperatures, surface wind, precipitation etc., coding all this into numerical groups from a code book and then sending to the Royal Canadian Corps of Signals wireless station at either Fort Simpson "VEC" (call letter for Fort Simpson) or Whitehorse "VEY" for relay to Toronto. Besides this I had other daily radio schedules plus the general work at the station. The company meanwhile had changed its name from the United Air Transport to Yukon Southern Air Transport, had bought some new twin engine aircraft and increased its service from Edmonton and Vancouver to Whitehorse. War in Europe had been declared and this had an effect too.

The result of all this was that I could scarcely keep up with the work, and I badgered McConachie to send me some help. In late summer a young man named Gordon Stock arrived to be my helper. Gordon had little experience, but he was a willing worker and was able to take over the outside work, such as cutting firewood and tending planes when they stopped in. So we kept things running okay at Watson.

By early November the Lake was freezing over and we could expect some reprieve from work. Gordon began experiencing a bad headache which I tried to relieve with aspirins, but they did no good. As the days passed, his face began to swell, and one eye was closed completely. There was no way a plane could land, so when it became obvious that the affliction was getting worse and Gordon could neither eat nor sleep, I called our operator at Charlie Lake, where our Fort St. John base was located at Red Powell's place, and asked him if he could locate a doctor and find out what I could do, if anything. Later our operator called back to say that the doctor, Dr. Kearny, said I would have to do an immediate operation to relieve the pressure, which was obviously forcing its way into some delicate area back of his eye and could result in death if not relieved. He agreed to attend at the radio station at Charlie Lake that night at eight o'clock, when communications were expected to be at their best, and guide my hand across the 500 miles. He advised me to provide myself with a razor blade, broken diagonally to give a piercing as well as a cutting edge, to boil it to sterilize it, and to have clean cloths and hot water for mopping blood.

That night other radios on our circuit cleared the air to allow an open channel, and conditions were excellent so that we could use microphones instead of the usual Morse code key. I led Gordon into the shack and sat him down. He was pretty far gone and there was no need to tie him in the chair, as the doctor had suggested. I was pretty shaky as Dr. Kearny gave me instruction where to start cutting and how deep I might have to go, so I began poking the pointed instrument into the area around Gordon's eye. Blood flowed, Gordon winced and moaned, and I was scared, but it was a comfort to know that the doctor was as near as my microphone. It took a while but eventually I cut through to the seat of the trouble and it burst out of his head. That was a relief. Gordon immediately went limp in a faint. The doctor said to lay him out on a mattress on the floor so the incision could continue draining, cover him up and keep him warm, and hope for the best.

I cleaned up around the 'operating room' and went to bed exhausted. I checked Gordon at four a.m. when I took my weather observation, and he had not moved. But I satisfied myself he was breathing okay and his pulse was steady. He didn't wake until well on next afternoon and his first words were "I'm hungry" That was music to my ears indeed. So I helped him up, washed his face and fed him some soup. He had no memory of his ordeal or even of several days before it. Days passed and finally I was able to get a small plane in and send Gordon out to Fort St. John, where Dr. Kearny looked him over and said there was nothing else needed to be done. I never saw Gordon again for 30 years! When he visited me one day in my office here, we had a great reunion, the little scar was scarcely visible and the trouble never recurred.

In 1942 Grant McConachie with Canadian Pacific Railway money behind him formed Canadian Pacific Air Lines out of several small bush lines, of which Yukon Southern was the nucleus. I was promoted to Chief Dispatcher of northern lines, based at Whitehorse. By this time of course the government was building airports, including one at Watson and installing its own radio and weather stations.

I was married by this time and we lived at Whitehorse for the next four years, but the old wandering spirit chafed at CPR type regulations, paperwork and reports and uniforms, so I left the company and went back to the trapline, this time to the Peace River Country, at Gold Bar, my father-in-law's ranch. I trapped for the next two winters in the mountains and the Graham River, but I was only trying to turn the hands of the clock back and I realized that it wasn't much of a life for a family man. And so, in the summer of 1948 we moved to Fort St. John, where I finally had the pleasure of meeting Dr. Kearny and discussing that scary but successful night of nine years ago. The good doctor died about 1970 and we remembered him by naming one of our new schools after him, - the Dr. Kearny Jr. Secondary - a fitting tribute.

D.O.T. RADIO OPERATORS of NORTHWEST STAGING ROUTE 1944

SNAG, Y.T. "XQ"

Bob Devlin	RF
Keith McMillan	NT
Bill Stunden	WC
Alf Taylor	AF
Ed Sommers	EM
Jack Rhodes	JR
Arnie Rushton	RH
John Quinn	JU
Don Moore	DA
Stuart Ewing	

AISHIHIK, Y.T."ZK"

Otto Rajaaho	OR
Ernie Brown	BO
Elmer Carley	CA
Walter Latcham	LC
Harry Reiss	HR
Johnnie Boudreault	JB
George Goodwin*	GW
Ed Ross	ER

WHITEHORSE, Y.T. "XY"

Elmer Nelson	RN
Warren Johnson	WR
Gordon Harding	GX
Max Hubbard	MX
Jimmy Marr	JM
Bob Williamson	WR
Frank Grant	FG
Stroy Leith	SL
Ray Oliver	RL
V. C. Robinson	RO
Larry Nelson	LN
Russ Travers	RT
Curt Hart	CH
Russ Clemo	RU
L. J. Kandell	IK
Keith Nablo	KP

TESLIN, Y.T. "ZW"

Pete Clute	CD
Bob Collomby	RA
Tom Lee	TA
Chas Stredulinsky	CS
Keith Morton	MK
Jack Proctor	JP
Bob Kliner	RG
Harold Taylor	HT
Gordon Warner	WG
Reg Harmer	--

WATSON LAKE, Y.T. "QH"

Joe Kandell	JK
Jim Semper	SA
Ron King	BK
Pete Volk	PA
Al Coulter	AO
Bob Smith	RW
Don Broughton	BN
Bill Moore	WA
Don MacKenzie*	DM
Alex Brouse*	BR
Al Holliday	AL
Hugh Clarke	RC

SMITH RIVER, B.C. "ZL"

Frank Cole	FR
W.R. McLauchlan	WM
Maurice Smith	MS
Earl Reid	MJ
Allan Matheson	MC
Joe O'Connor	JO
Red Peddie*	RY
E.C. Scotten*	ES
Gordie Bean	GD

FORT NELSON, B.C. "YE"

Herb Foxcroft*	HJ
Joe Swatkoff	SJ
Enos Lundrigan*	LU
Elliot Schwartz	KA
Jack Chalmers	JC
Tom Lawlor	TL
Less McPherson	LM
Alf Steigenberger	SR
Bill Sault	WS
Larry Laughton*	LL
Chris Crump	CC
A. Dewores	TD

BEATTON RIVER, B.C. "ZC"

Ted James	AJ
J. Harold Otis	HS
Bill Freek	LF
R.A. Blenkarn	RN
Lloyd Stokes	--
W. Melnychuk	--
George Oakes	GO
J. Grimbey	--

FORT ST. JOHN, B.C. "XJ"

Charlie Fisher	CR
Vince Tomlinson	VT
Babe Marcelle	BB
Bud Woodruff	WW
Guy Philpott	GY
Hugh Barlow	HB
Jim Shaw	JS
Gordon Hauch	HH
Frank Parsons	FA
Sammy Gangbar	SG
Leo Georgy	LG
George Galinas	GG
Howie Zurbrigg*	HZ
E. Wagonblass	EG
Lloyd Collins	CO

PRINCE GEORGE, B.C. "XS"

Tom Norton	BF
Bill Lee	WL
George McGlashan	GM
Arnold Edwards	AC
Donald Bullock	DA
Fred Wournell	FW
Fred Keil	FK
John Sugden	JS
A. Brundrett	AB
M. Hallson	MH

SMITHERS, B.C. "YD"

Pierre Guinness	PG
Frank Brown	FB
Ed Griffith	WD
Clyde Waddell	WD
E. Dyke	HD
Glen Bough	--
Hank Persson	HP
Harold Levesque	HL

GRANDE PRAIRIE, Alta "QU"

Max Bonitz	BL
George Ericksen	GK
George Gauld*	GA
Chil Flick	CF
Doug. Woolven	CW
Alf Dawson*	AD
Harold Bowden	KJ
Bob Dawson	RD
Alex Krutko	AK
Al Bromley*	BA
Kevin Coyne*	KC

EDMONTON, Alta "XD"

Norm Larson	NA
Bud Ostrum*	MO
Guy Simmons	GS
Leo Zuccato*	LZ
Stan Morrison*	MR
J.F. Perrier	JP
Bob Jones*	RJ
Eric Lambert	EL
Dusty Weaver*	DW
Bill Wylie	BW
Joe Wasylyk*	JW
Lorraine Sandman	LS
Ron Buss*	RB
Earl Walker*	GW

AVIATION RADIO HEADQUARTERS AVRAD, EDMONTON, Alta

H.J. Jeff Williamson* District Radio Aviation Engineer.

Harry Allan*
Art Taylor
Oliver Howey*
Gilbert Wall
Fred Burwell Sr.*
Des Carty*
Jim Connolley
Herman Hooper
Phil Eldridge
Don McDonald
Austin Smith
Harry Persse*

PENHOLD, Alta "QF" (1942)

John Mennie, OIC
Archie Wicks A/OIC
Gord Lines
Harold Murray*
Bill Stunden

CALGARY, Alta "YC" (1942)

A. Shatford. OIC
Bill Hollinger, A/OIC
Ernie McPherson
Jim Essex
Bill Edmunds

LETHBRIDGE, Alta "QL" (1943-44)

Harold Hawkes, OIC
Joe Lehman, A/OIC
Jack Moore
Bill Murray
K. Plosker
E.L. Thompson
E. Thompson
G.A. Stevenson
Erwin Gould

COWLEY, Alta "YM" (1942)

Mr. Davidson, OIC
Bill MacIntosh A/OIC
Ron McNeil
John Rosenthall
Ross Perry
Jack Rogers

MEDICINE HAT, Alta "XH" (1942/44)

Walter Wastell, OIC
R.S. Fulton
Gord Cassie
Don Harvey
Harry Ainsworth
Charlie Robertson

OIC - Officer-in-Charge
A/OIC - Acting
" " or pairs of letters following a name denotes their identification sign.
* denotes "Silent Key", one who has passed on.

Civil Service Commission of Canada

Information Circular No. 63-E-9

RADIO OPERATOR
$3,750 - $4,200
- PLUS ISOLATION ALLOWANCE -
DEPARTMENT OF TRANSPORT, AIR SERVICES BRANCH, EDMONTON AIR SERVICES REGION

Note:

Substantial allowances are paid to all employees posted to isolated centres. The exact amount depends primarily on the location of the employee and on whether or not he has dependents residing with him.

PREFERENCE in appointment will be given to qualified residents of the Edmonton Air Services Region, which consists of the Province of Alberta, the Northwest Territories west of the 110th Meridian, the Yukon Territory, the Uranium City Area of Saskatchewan, and that part of British Columbia north and east of a line 10 miles west of the Alaska Highway.

DUTIES (Radio Operator 1)

To keep watch at a Marine or Aviation radio station, and to transmit and receive messages by radiotelephone, teletype and telephone; to monitor radio aids to navigation; to take and code meteorological weather observations; and to perform other related duties.

Note: Previous requirements before this date stipulated that operators send and receive messages by international Morse code. Norm Larson

QUALIFICATION:

A good general education acquired as a result of adequate formal training and experience; possession of a valid First or Second Class Certificate of Proficiency in Radio; good enunciation; personal suitability; satisfactory physical condition.

OTHER INFORMATION

1. Appointment will be made on the basis of merit and will be subject to the statutory preference for veterans.
2. Folders explaining the requirements of citizenship and residence and outlining veterans preference may be obtained from any office of the Civil Service Commission.
3. While no vacancies exist at the present time, some are expected and an eligible list will be established as a result of this competition from which future vacancies may be filled.
4. This competition will remain open until all position requirements are met or until DECEMBER 31st, 1963 whichever is earlier.

WHERE TO APPLY

Applications, Form CSC 69, available at Post Offices, National Employment Offices and the Civil Service Commission, should be filed with the: -

Civil Service Commission, 766 Federal Public Bldg.,
107 Street & 99th Avenue, Edmonton, Alberta

Edmonton, Alta
July 19th, 1963

This information circular is reproduced as close to the original as we could attempt, and represents such typical circulars that had been posted by the CSC of Canada during the time period of our publication.

April 26,1944

Department of Transport
Radio
Division
Radio Aviation Section

Responsibilities & Duties of Radio Operators.

1. Officer in Charge:- The responsibilities of the Officer in Charge are summarized as follows:

(A) Maintenance and Instruction. The carrying out of maintenance of all radio equipment associated with the station. While the Officer in Charge himself is responsible for this work, he is to request the assistance of the Radio Operators when necessary. He is to train the Junior Operating Personnel in the operation and maintenance of this equipment so that each operator on the station will become competent to take charge of the station in the absence of the Officer in Charge. The Officer in Charge may assign all or part of this instruction work to his Junior Operators who are already trained. This is, in fact, desirable in order to prepare the Junior Operators for promotions which might subsequently require them to give such instruction as Officers in Charge. However, irrespective as to who gives the instruction, the Officer in Charge is responsible for seeing that this training is properly carried out. The training is to cover all phases of the work connected with the operation of the station, (i.e., operating procedure, technical, maintenance of radio and power supply equipment, operation and care of motor vehicles, business routine including the writing of reports, letters etc.).

(B) Clerical. the Officer in Charge or the Acting Officer in Charge must initial all official incoming correspondence indicating that he has seen and read the same, and sign all outgoing correspondence. In the absence of the Officer in Charge, the Operator on Duty may send urgent telegrams, Notams, etc. on his own responsibility but should have the Officer in Charge initial same at the first opportunity. The Officer in Charge must sign all reports made out in connection with the operation of the station. He may assign the duty of making out the various reports to his junior Operators but the appearance of his signature on the same will be regarded as his concurrence with the details recorded in the report.

(C) Supervision. The Supervision of the Operating Personnel of the station and the issuance of the necessary reports on staff efficiency (form 2183). Reports on staff efficiency must be made out and signed by the Officer in Charge himself. In these reports the Officer in Charge is obliged to comment on the following points concerning the member of the staff to whom the particular report applies.

(1) The Operator's application to and absorption of the instructions given him during his period of training.

(2) The Operator's willingness to assist the Officer in Charge with the business routine and other duties associated with the station which cannot be defined strictly as part of the standard watch keeping duties of the Operators.

(3) The Operator's initiative in taking action to meet emergency conditions or to prevent emergency conditions from being created, and his willingness to spend extra time if necessary to correct faults, not leaving them to the Officer in Charge or the next Operator on duty to correct.

(D) Watch Keeping.

(1) At stations where the staff consists of five or more operators (including the Officer in Charge) the Officer in Charge is required to perform at least one eight-hour, to two four-hour, range operating watches per week. He must stand relief watches in the event of one of the other operators being absent from duty due to sickness or other justifiable reasons. (This does not include relief for statutory or extended sick leave.)

(2) At stations where the staff consists of four operators (including the Officer in Charge) the Officer in Charge is required to perform at least 36 hours of watch keeping per week.

(3) Definite maintenance or clerical duties will be assigned by the Officer in Charge to the Operator whose watch keeping duties are reduced as a result of the above. This feature should rotate amongst the staff.

(E) Airport Traffic Control Radio Equipment. The Officer in Charge has no jurisdiction over the staff operating the Airport Traffic Control Radio Equipment. He is expected, however, to co-operate by giving advice and answering questions regarding the satisfactory operating of the equipment.

(F) On Call Duty. To be on call during the period he is off duty, for emergency circumstances which may necessitate his proceeding to the station to assist the Operator on Duty with the problem in hand. This on call duty may be assigned temporarily to another competent Operator during periods when the Officer in Charge is not available.

(G) Delegation of Duties. The Officer in Charge is not expected to personally carry out all of the duties (other than watch keeping) for which he is responsible, thereby inflicting an undue burden upon himself. He may delegate the responsibility for the maintenance of certain types of equipment (e.g., motor vehicles) to other members of his staff, but he must see that these duties are efficiently carried out.

2. Junior Operators:- *Note 1. For the purposes of this circular "Junior Operator" means all operators other than the Officer in Charge.*

The responsibilities of a Junior Operator are summarized as follows:

(A) Study. To diligently apply himself to the instructions given him by the Officer in Charge on all phases of the work connected with the station, so that he may become competent to take charge of the station in the event of conditions arising which would require him to do so. This is definitely advantageous to himself for the standpoint of preparing himself for promotion.

(B) Watch Keeping. To stand operating watches in accordance with the schedule drawn up by the Officer in Charge of the station.

(C) Maintenance. To assist the Officer in Charge as required in routine maintenance practice on all equipment associated with the station, and to assist in the general business routine (writing of letters, reports, etc.) connected with the operation of the station. When trips are made to range or transmitter buildings, as far as possible, two men should make the trip. This is desirable for the standpoint of rendering assistance with the work involved, avoiding the possibility of accidents, and to enable the senior of the two operators to instruct the other operator in the maintenance and operation of the equipment.

(D) On Call Duty. To stand on call duty in place of the Officer in Charge during periods when he is not standing watch at times when the Officer in Charge is not available. Arrangements for the allotment of on call duty to the Junior Operators will be made by the Officer in Charge to cover the times mentioned. To render assistance to the Operator on Duty when called upon to do so even though this calls for duty outside of his standard assigned watch. This assistance is classed as being included in the normal duties of the Operator.

(E) Trouble Shooting.

(1) A newly appointed Junior Operator is to report to the Officer in Charge any breakdown or any irregularities in the operation of the equipment before taking action to remedy the same. When the Junior Operator has completed his training and is competent to handle these situations himself, the Officer in Charge is to authorize him to assume the responsibilities outlined in (E) (2) below.

(2) To correct faults which have caused a breakdown and to correct irregularities in the operation of the equipment which indicate the development of faults which might eventually result in a breakdown, on his own initiative, even though this requires an extended period of duty. A full report on any adjustments or repairs made by the Junior Operator must be made to the Officer in Charge in writing including sketch diagrams where necessary. This report must be written before the Junior Operator goes off the duty period during which the adjustments were made. This report is to be left in a conspicuous place for the Officer in Charge and his attention should be drawn to it in the station log. The other Junior Operators of the staff are to read these reports also in order that they will be completely acquainted with any adjustments that have been made. Failure to determine the cause of a breakdown within half hour of its occurrence should be reported to the Officer in Charge at once. Whenever possible, an "off Duty" operator should be called to stand by at the remote control point while the Operator on Duty proceeds to the station to investigate the breakdown.

3. Priority of Duties:-

(A) Priority List. Radio Aviation Radio Operators are employed primarily for the purpose of providing efficient operation of the Radio Aids to Air Navigation and Communication facilities. Other duties which they may be called upon to perform are under no circumstances to be permitted to interfere with this purpose. The priority of duties of Radio Aviation Radio Operators is as follows:

(1) Operation and maintenance of Radio Aids to Air Navigation and Communication facilities.

(i) Radio Ranges,
(ii) Airway Traffic Control Interphones (operating only)

(iii) Radio Communication Stations,
(iv) Fan Markers,
(v) Cone of Silence Markers.

The priority of (i), (ii), etc. within this priority grade is to be left to the discretion of the Radio Operator, and is to be judged on the urgency of the duties in hand.

(2) Attendance of electrical power generating units where same are the primary source of electrical energy for the station and where the Radio Aviation operating personnel are responsible for the same. (Detailed instructions concerning these duties are contained in G2 series circulars issued by the illumination section of the Civil Aviation division.)

(3) Monitoring of adjacent Radio Range Stations.

(4) Monitoring of frequencies listed in Air Navigation Radio Aids for the station concerned, and frequencies being monitored by request, (the latter for periods of definite duration and in accordance with the availability of equipment.)

(5) (i) Assisting with meteorological duties at stations provided with a partial or full meteorological staff. See special note below.

(ii) Carrying out of all the meteorological duties at stations where no meteorological staff is provided.

Note 2. For the purpose of this circular "meteorological duties" include teletype operation" "meteorological staff" includes Teletype Operators: Meteorological reports"

(6) Radio Aviation station business routines; i.e., reports, correspondence, etc.

(7) (i) Assisting with meteorological reports at stations as in (5) (i).

(ii) Compiling of meteorological reports at stations as in (5) (ii).

(8) All other duties which the Radio Operators are required to perform at the station.

Special Note. At stations where meteorological duties have been assigned the Radio Operators and where these duties include assisting with pilot balloon observations, the Radio Operator's assistance in this connection will be limited to recording the observations. The Meteorological Division is to provide facilities so that these readings can be recorded without the Radio Operator leaving the Range Control Room.

Duty (5) is to be placed ahead of Duty (1) for the period from 20 minutes after the hour to 30 minutes after the hour, and when special weather observations are required; when no member of the Meteorological staff is on duty (see (5) (i)) or assigned (see (5) (ii)).

The Operator on Duty is to record in the Radio Log (form 2051) instances when it is necessary to neglect meteorological duties. He is definitely responsible for establishing a justifiable reason for so applying this priority in each case.

(B) Co-operation with the Meteorological Division.

Radio Aviation Radio Operators are expected to co-operate with the Meteorological Division in carrying out the meteorological duties assigned to them.

(C) Assignment of Meteorological Duties.

(1) The Meteorological Division is to obtain the approval of the Radio Aviation District Office or Offices concerned for the assignment of meteorological duties to the Radio Range staffs at the station involved. When this approval is obtained, the Meteorological Division is to issue the necessary instructive material to the Radio Operators, covering the manner in which the assigned duties are to be performed. The Radio Aviation District Office is to advise the stations concerned as to what meteorological duties have been approved.

(2) If the Meteorological Division and Radio Aviation District Office are unable to reach working agreements on the above basis at one or more of the stations concerned, full reports on the circumstances are to be submitted to their respective Headquarters for arbitration.

G.C.W. Browne.

B1 - General Operations.

Frequencies.

Transmitting Frequencies.

Authorized and assigned transmission frequencies for navigation aids airport traffic control tower and route ground-to-air stations are listed in "Air Navigation Radio Aids".

Authorized and assigned transmitting frequencies for Ground-to-air ("route" and "company") and point-to-point (D.O.T. "route" and "company") and shore-to-ship communications facilities provided by Radio Aviation stations are listed in Appendix A of this manual.

Frequencies Guarded.

Itinerant, common air-carrier, armed forces and route air-to-ground frequencies listed in "Air Navigation Radio Aids" shall be continuously guarded. In the case of pairs of day and night frequencies, the term "continuously guarded" shall be construed as meaning that only the appropriate one of a pair shall be guarded at one time.

Radio Aviation point-to-point, "company" air-ground and/or point-to-point and maritime mobile frequencies shall be guarded as necessary to provide the services assigned. Although these frequencies are not listed, at present, in any of our publications, field personnel will assist Headquarters in keeping up-to-date records by forwarding promptly, through the usual channels, any permanent amendments made to these frequencies to fit operational requirements.

Monitoring.

Navigational Aids. Navigational aids operated by Radio Aviation shall be monitored as instructed below to ensure their proper operation. A notam (notice to airmen) shall be issued reporting the abnormal operation of any facility being monitored, Notams shall not be issued covering course shifts of ranges which are obviously due to night effect. (Detailed instructions concerning the filing of notams will be found under para. 7. of this manual.

Radio Ranges. In monitoring radio ranges stress shall be placed upon observing the following points of the signal being received.

(1) Course characteristic.
(2) Identification.
(3) Signal strength.
(4) Key clicks.

The definitions listed in "Air Navigation Radio Aids" shall be used in determining course characteristics and describing their deviation from normal operation.

The procedures outlined below shall be followed when monitoring range signals:

(1) Both the AVC and BFO switches of the range monitoring receiver shall be OFF

(2) Headphones shall be used when monitoring adjacent ranges.

(3) Since the signal characteristic may be distorted by too much RF gain, the receiver shall be operated with maximum audio and minimum RF gain to provide a suitable signal. Once suitable settings have been determined they shall be recorded on a card mounted on the panel of the monitoring receiver and used by all personnel engaged in monitoring duties. If a meter is used, the signal characteristic shall always be checked on the same portion of the scale, and these shall also be controlled by using the minimum RF gain necessary.

(4) The normal course characteristic of the signal for each range station monitored shall be recorded and posted at the operating position for ready reference. No change shall be made in this record except if necessary following a recalibration when the characteristic may change.

(5) If the standard range monitoring receiver becomes defective care shall be taken to see that the replacement receiver is connected to the standard monitoring antenna. A different antenna may result in apparent course shifts.

Local Range. Each station shall continuously monitor its own range signal, except for periods when the monitoring receiver is actually being used for monitoring the signal of adjacent ranges.

Emergency Monitoring. At Stations where emergency power is not provided at the remote control office provision has been made whereby it is possible to carry out periodic monitoring of the local range during power failure. This is accomplished by a simple crystal receiver located at the range site, the output of which is fed through suitable switching circuits to the range-control point interphone circuit. Monitoring, by this system, is accomplished by dialling a number on the Remote Control Unit of the range equipment and listening on the interphone handset. The number to be dialled is:

12 - for Radio Receptor Co. and Canadian Marconi Co, equipments.

81 - for Northern Electric Co. equipments.

Adjacent Ranges. Immediately adjacent ranges shall be monitored at least once every hour, or oftener if required by the district office. The monitoring periods shall be spaced as evenly as possible. The duration of each monitoring period shall be such that both identification signals are heard at least once.

Range Broadcasts. In order to check upon the quality of modulation all broadcasts shall be monitored by the operator making the same. In order to satisfactorily accomplish such monitoring headphones shall be used. Scheduled weather broadcasts from adjacent ranges shall be monitored as required by the district office.

Other Navigational Aids. Such as fan type markers, station location markers, etc., shall be monitored as equipment permits and according to instructions issued by the district office concerned.

Radiobeacons. Aeronautical radiobeacons shall be monitored at least once per hour, or oftener if required by the district office, by the range station designated as being responsible for this duty.

Service "F" Interphone System. Certain Radio Aviation stations shall carry out monitoring duties on Civil Aviation Division Service "F" interphone circuits. When so delegated, the duties shall consist of keeping a record of all intercepted unauthorized traffic, indicating:

(1) Time of infraction,
(2) Duration of call,
(3) Nature of traffic,
(4) Initials of personnel involved, if possible.

Stations responsible for such monitoring shall submit a monthly summary of infractions to the Senior Area Traffic Controller of the ATC Area concerned.

In determining what constitutes unauthorized traffic personnel shall be guided by the following Civil Aviation Division instructions concerning authorized communications on Service "F" interphone facilities.

Service "F" interphone facilities have been installed for the sole purpose of expediting air traffic control communications. The only communications, therefore, which may be passed by this means are those required in connection with the control and safety of aircraft. The following are the only communications which may be transmitted by Service "F" facilities, shown in order to priority:

(1) IFR and Controlled VFR movement and control messages;

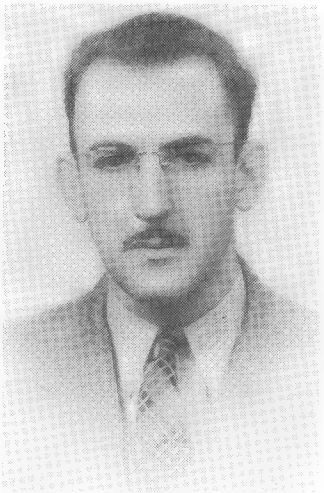
- (a) Control messages concerning flights in progress.
- (b) Departure reports.
- (c) Progress reports
- (d) Control messages concerning flights requiring approval prior to departure.
- (e) Arrival reports.
- (f) Flight plans.

This preceding Department of Transport Circular has been reproduced herein almost verbatim to the 1944 issue. The original was a typewritten document, we have reproduced it here in a somewhat compact fashion with the aid of modern typesetting equipment. Editor

DONALD GEORGE MacKENZIE
Radio Operator

Etta MacKenzie

Etta MacKenzie wife of the late Donald George MacKenzie wrote this account for us in 1991.

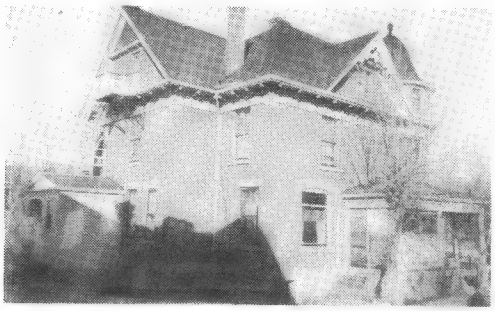


Don MacKenzie "DM" 1942

Don started with the Department of Transport in May 1942 as a radio operator and was first stationed at Watson Lake. He worked there for two years and had many stories to tell - his favorite was the time Bob Hope and his troupe had to stay over, and another when a crew arrived and had to be fed. The cook asked for help and fortunately one of the fellows had been a baker, so he promptly made bread.

In 1944 Don was moved to Norman Wells as officer in charge and worked there a year. In 1945 he transferred back to Edmonton to work with the travelling technicians repairing and up-grading radio equipment along the Northwest Staging Route. He moved into my mother's boarding house to have a home base. The following is a short history of the boarding house.

My mother, Mrs. Grant, took over the house on 107th Street in 1938 - the first house we had was sold so the boarders moved with us. This new house had been a mansion - three floors and 17 rooms. In 1942 we had the first radio operators; Bill Wylie, Bud Ostrom and Hank Persson. The department had a training program on in Edmonton for the fellows before they went north.



Mrs. Grant's boarding house, 1942.

Edmonton was packed with people - Americans on the Alaska Highway and pipeline jobs, and rooms and beds were hard to come by, so by word of mouth our house handled as many as 40 boarders that winter and into 1943. They were moving in and out all the time.

They had to remember to bring their wartime ration books so we could buy groceries. It was like a big family and everyone helped with bed-making, dishes and snow-shoveling. A lot of hard work but fun too, as there was always someone to play cards with or talk and some fellows who were very musical, like Joe Kandell who played the piano. We served breakfast, and dinner at night, and made lunches for the shift workers.

Don was a fine radio technician but at times used unusual methods Notice the hammer and blowtorch.

When Don moved in, he didn't know he would be marrying the landlady's daughter the next year. He really enjoyed the technical work and in the fall of 1946 was sent to establish a station at the new airport at Yellowknife. We lived in the control building until our house was built - it was handy for Don and the men who were setting up the radio range. He was officer in charge for eight years at Yellowknife before transferring to Whitecourt. The Valleyview highway was being constructed so we had a lot of experience with the Peace River gumbo (sticky clay soil). We learned not to go when it was raining, otherwise you slid off the road.

In 1956 we again were on the move to Whitehorse as Don was promoted to technician status and was in charge for a while. Bill Wylie took over for a while and then Don again. We were there 12 years - most enjoyable ones - our two boys grew up there.

In January 1968 we transferred to Lethbridge where Don worked for nine years as manager and technician.

Don retired from the department in December, 1976 and enjoyed the next 12 years doing all the things he liked; bike riding, tennis and refurbishing old cars. Illness caught up to him and he passed away May 28, 1989; sadly missed by his son Don and myself.

NORTHWEST STAGING ROUTE MORSE CODE CIRCUIT

Bill Wylie

Bill Wylie was a radio operator, serving many stations. This account was written by him in Edmonton 1991 where he is retired.

The reason I became a Radio Operator was not so much my love for electronics, that came later, but my desire to have a steady job that wasn't all hard labour, and to get away from employment in those places that were injurious to your health.

I graduated from high school in June, 1932, right in the middle of the Great Depression when jobs were few and far between. My home town was Parry Sound, Ontario, which had a population then of 2,500. It is situated on Georgian Bay, part of the Great Lakes and was, and still is a beautiful spot, but strictly a tourist town. This meant that any jobs in that trade lasted for only three months so it was difficult to save enough money to get further education at Toronto, 160 miles away, the nearest place for trade schools.

During 1939-41 I worked part time at Canadian Industries Limited at Nobel, Ontario, seven miles north of Parry Sound, in a dynamite factory. Part of this time I was in the raw material end where we unloaded coal, soda ash, sawdust and other materials from railway cars. Other times I was down the "powder line" where they mixed these raw materials and added nitroglycerin to produce dynamite of various kinds for shipment to the mines at Sudbury, Ontario. The powder line buildings were surrounded by big fir trees and barricades so that if one building blew up the others might not suffer the same fate from the shock.

Neither of these two locations were very nice to work at. In the dynamite location you had a continual headache from the nitroglycerine and a fear that an explosion could occur anytime. One building did blow up, prior to my employment there. A mix house (where Nitro is mixed with the powder) was blown to pieces along with four men. Nothing was left of the building and barricades. There was just a big hole in the ground. In the raw material end we were exposed to a variety of acids and dusts (without the benefit of masks) which later were found to be very toxic.

On March 15, 1941, I had enough of Nobel and signed up with the Department of Transport as an able bodied seaman on board the St. Heliers. This ship weighed 520 tons, was 160 feet long and was used to get lighthouse keepers to the lighthouse during the first week in April, then bring them home just before Christmas, and to supply them with coal, gasoline and alcohol, and to move all their personal supplies.

In addition we had to paint, repair and shingle all lighthouses and range lights (unattended blinkers) from Sarnia to Fort William, Ontario. We also had to set out buoys and markers along the shipping lanes and these could only be set out after hours of taking depth soundings to find the best spot to drop the 12-ton anchors to hold the buoys. This was a lengthy, wet and cold task during the early spring. Georgian Bay is 5,400 square miles and in this expanse there are 89,000 islands.

My salary was $65.00 a month and board. The food was excellent and plentiful but the hours of work were often extreme. Our normal hours were seven a.m. to six p.m.. Monday through Friday and seven a.m. to one p.m.. on Saturdays. There were no coffee breaks. When we got to a lighthouse our ship anchored a mile away from it, because of shallow water, then we lowered a power boat and a big scow into the water and moved the supplies to the lighthouse, which is usually located on the highest point of the island. The 45-gallon drums were rolled by two men over sand beaches and rocks up to their destination a quarter-mile away. Coal was transported on our backs, in crab fashion where you bent over and had your back parallel to the ground and you carried up to two 50 to 60 pound sacks of coal. That was bull work. At mealtime we went back to the ship and ate, then back to unloading until we were finished even though it often was midnight.

The captain thought that rough weather might come in by morning and we wouldn't be able to complete the unloading, so it was better to do it now while it was still relatively calm. No overtime was paid and no time off was given even though we ran into this situation several times, and work always began at seven a.m. next morning.

To add to our miseries only half the crew was permitted to go ashore at night when we were in port, because of fire regulations. Too often your time ashore was wasted unloading the ship at midnight. The crew wasn't unionized then but I found out that in later years a union represented the workers, and regular hours were enforced and working conditions improved considerably.

One night while confined to ship I decided there must be a better way to make a living. It ran through my mind that the Radio Operator has an easy job, was always well dressed, could go ashore anytime we were in port, ate in the captain's dining room and made $45.00 a month more than I did. It was then I decided I would become a radio operator and enjoy the good life, so I left the ship at the end of August 1941 and attended The Canadian Electronics Institute in Toronto. I graduated in June, joined with the Department of Transport (D.O.T.) on July 10, 1942, and six days later arrived in Edmonton, Alberta.

A training school was set up in Edmonton in the Radio Inspector's spare room in the Blowey Henry Building on Jasper Avenue, where we learned to touch type, practice code and get familiar with the procedures used on the D.O.T. circuit up the Northwest Staging Route. Students in the first class were: Bill Sault, Gordon Hauch, Magnus Hallson, Henry Persson, Bud Ostrom and myself.

In six weeks we were posted to a station to make room for new operators coming into the service. Bill Sault and I were sent to Fort Nelson, B.C. on a Canadian Pacific Airlines Lockheed Lodestar (16 passenger) piloted by Hollick Kenyon (after whom the Lethbridge Airport is named). That was my first airplane flight.

As the flight by-passed Fort Nelson we had to stay a night at Fort St. John in a seedy hotel. That night we went

to a show in a hall where the seats were planks held up by cable spools.

Unfortunately our suitcases had gone to Whitehorse, so next morning Bill Sault and I looked for a barber shop to get a shave. There was only one shop in town and it was housed in a small tent with a 45-gallon drum from outside for water. The tank was empty so we had to wait an hour for the water to be delivered and heated.

At 10 a.m. we boarded a biplane, CF-BVX, piloted by a Mr. Weibe on a mail flight to Fort Nelson. When we landed at Muskwa we both thought it was a God-forsaken spot and we wondered why an airport would have to be built in such a desolate place. We found out later that fighter planes being ferried from the U.S.A. along the Northwest Staging Route to Alaska, then to Russia, had limited gas range, so Fort Nelson was their first stop out of Edmonton about 550 air miles.

The airport was called Muskwa after a river nearby, while Fort Nelson was located on the Nelson River about 3.5 miles from the airport. It was a Hudson Bay Trading Post, run by Mr. and Mrs. Bill Garbutt who handled the fur trade locally and sold goods and supplies to trappers, prospectors and the like.

Four of us from the airport walked down to see it in the winter and the last half mile we had to walk across the frozen Nelson River. A pool table was available so we decided to play a game. When we took the rack off the balls they rolled toward one pocket. We put a shim under one table leg, finished the game and enjoyed it.

The winter was cold both inside and outside the barracks. This building was two stories high with several bedrooms on each floor, a big dining room and kitchen, no insulation anywhere and only one furnace to heat all this space. Our firewood was green poplar and fir trees that had recently been cut and it wouldn't burn unless kindling was used continually. We ate with our mitts and parkas on and went to bed the same way but never were comfortable during the winter.

Ott Rajaaho, a well padded person from Aishihik had to stay with us one night due to poor flying weather. He slept in Tom Foley's room and at breakfast next morning he told us he went to bed fully dressed and was so cold during the night he had to use some of Foley's clothes and then his own felt boots and still was cold. You had to experience it to believe it. A weather man took a temperature reading in the dining room one morning and it was 41 degrees Fahrenheit.

Water and outhouses were a problem too. No running water anywhere in the building so our indoor plumbing just sat idle. The wells that were drilled produced oil and water together and as a result the drinking and cooking water had to be boiled before consumption.

There was only one outhouse for a staff of 20 and by the onset of winter it was beyond use. That meant a walk across the runway and through snow into the bush when nature called. The cook and his wife had a private biffy outside but they kept it locked or else it would have been in the same shape as ours.

We tried to get headquarters to rectify this problem but with the expansion taking place on the circuit they had more pressing problems. One of the Edmonton office staff paid us a visit during this biffy trouble and when it came retiring time he was asking if anyone had a flashlight since he had to take a trip. No one offered a light so he went out in the dark and upon returning he was smiling and said he almost got speared. Even that episode didn't bring us a new toilet.

The food was good except for the lack of fresh meat. Canned ham was served for almost every meal and although it was delicious we became tired of it after several months. The operators started to complain to the officer in charge and he wired Edmonton as follows: "No beef, boys beefing". It took headquarters many weeks to respond to that request.

We could hardly wait for Christmas to arrive in 1942, anticipating lots of turkey and all the trimmings but that never happened. Our turkey never got to the table and rumor had it that they had been traded off for booze, so it was ham again.

Austin was a radio operator at Fort Nelson. When I was there he told me that he and another operator were sent up to this location before the radio station was in existence. They rode up the highway from Edmonton in a truck which was bringing supplies to construction crews on the Alaska Highway. He had a small tent, a transceiver, a portable power supply with lots of gasolene, dry beans, lentils, flour, rice, powdered milk and a supply of canned ham. They also carried 100 feet of snare wire to catch rabbits for fresh meat. They caught very few. The trip was made to find a suitable site for a proposed radio station and to ascertain how signal conditions were in the area. They had radio contact on short wave with Fort St. John. When I heard this I realized we weren't so bad off in 1942.

I can't recall the names of all the operators in Fort Nelson then but some of them were: Austin Smith, Hugh Martin, George Lynch, Harold Levesque, Bob Dawson, Criss Crump, Bill Sault, Larry Higgins, Ray Oliver, Jerry Heath, Les MacPherson and myself.

Larry Higgins was originally from British Columbia. He eventually was sent to Tobally Lake (near Smith River) to lay the ground work for another station. Larry had hundreds of pounds of personal effects, mostly radio equipment which he apparently lost and never recovered when the boat capsized on Tobally.

Larry also ran into a little difficulty before he left Fort Nelson. Our one and only runway was a dirt and gravel strip. Then a new parallel paved runway was constructed but not to be used until it was seasoned and okayed by the field staff.

Larry was on duty when a flight of Curtis P40s were coming in and they wanted to land on the paved strip. He told them that the runway was not to be used but then advised them he had checked the new runway in the morning and it looked okay to him. Three P40s landed on the new strip, sank in six inches and stood on their noses. The fur sure flew then.

My stay in Fort Nelson lasted 13 months and for that I was very grateful. In those years Fort Nelson had nothing going for it. No scenery, no recreation, no stores, no shows, no gals, no good water and too little heat in the winter. One good thing happened though - I did make good friends there and I am still communicating with some of them after 49 years.

From Fort Nelson I was transferred to Edmonton and remained at the station for almost nine years. It was an extremely busy place during the code days and I liked it very much until teletype replaced the Northwest Staging Route code circuit. Nothing seemed the same after that happened even though we still used Morse code on the MacKenzie and Ottawa circuits. But traffic with those stations was light. It was very hard indeed to accept the fact that the days of the continuous wave on the Northwest Staging Route were over.

When I reminisce about the good old continuous wave days and think of all the traffic that was handled on this circuit despite weak signals, atmospheric interference and marginal equipment in the earlier times, I believe radio operators should be very proud of what they accomplished and I tip my hat to all of them for a job well done.

FORT NELSON ADMINISTRATION BUILDING
Tower, Radio Range, Meteorological and Airport offices

Radio operators,
Les McPherson and Bill Wylie
at Fort Nelson, 1943

Bill Wylie operating Edmonton radio range position with overlooking operations, left to right:
J. R. K. Main - Regional Director Air Services Edmonton ,
Lionel Chevier - Minister of Transport, Ottawa
Jeff Williamson - District Radio Aviation Engineer, Edmonton,
Mr. Cowley - Director of Air Services Ottawa

ANTHONY (Scotty) SCOTT

Scotty Scott, radio operator, served in many stations and posting with the Department of Transport. He wrote this account in Penticton, B.C. 1991, where he is retired.

My first job was in radio servicing in a small store in Ottawa which sold pianos and radios. The owner gave piano lessons as a sideline and this contributed to my undoing. I happened to turn up the volume on a set I was servicing, much to the annoyance of the owner who was giving a piano lesson at the time. My employment came to a rather abrupt end, in short, I was fired.

My first government job was with the Ontario Forestry Branch, and in 1936 I was posted to Adair Tower near Cochrane, Ontario as a radio operator. The only real recollection I have of this place was the millions of mosquitos and black flies that frequented the area. The forestry people supplied mosquito netting which did provide some relief, otherwise we would have been eaten alive!

In the spring of 1937 I was posted to the forestry branch station at Red Lake, Ontario, a few miles from the town. The only access to Red Lake was by the forestry launch making our visits to the bright lights rather infrequent to say the least.

Scotty Scott, radio operator at
Regina Radio Range Station
Note: microphone used.

In the fall of 1937 I joined the Department of Transport as a radio operator and was given an assignment at Regina, Saskatchewan. The department had just taken over the radio range station on the outskirts of the city which had been formerly operated by the Department of National Defence.

After about a year or so we moved over to the spanking new terminal building at the Regina airport.

With the threat of war with Japan rapidly developing the Northwest Staging Route was brought into being. Radio range stations with associated communications equipment were being constructed along the route between Edmonton and the Alaska border near Snag, Yukon. The Alaska Highway was also under construction by the U.S. Corps of Engineers on a high priority basis.

Anxious to contribute to the war effort in a small way, I transferred to Whitehorse in 1941 as senior operator. We had a five-man staff at that time, consisting of Russ Travers as officer in charge, Ott Rajaaho, Ollie Antilla, Elmer Nelson and myself. As the number of aircraft and amount of message traffic was increasing daily the number of positions at the station was also stepped up, requiring a total staff of 16 at the end of 1943. Communications for Canadian Pacific Airlines were taken over during that time giving us an additional traffic load.

I transferred to Vanderhoof, B.C. as officer in charge in the fall of 1943 with a four-man staff. After that station closed in 1946 I went to Smithers, B.C. in the same capacity with a five-man staff.

During my nine-year stretch at the Smithers Airport I was very active in community affairs and was president of the Junior Chamber of Commerce for two years and a director of the senior chamber.

In 1955 the officer in charge position at the Nanaimo Airport became available following the retirement of Bud Fenton, and I was transferred there. Although the posting at Nanaimo was an enjoyable one in many ways, I found the station to be a little too quiet for my liking, especially with a five-man staff, so I began to look for other prospects.

In the spring of 1958 the department advertised for technical officers in the Radio Regulations Division and after much soul-searching I decided to apply and was successful. With some opposition from the good wife and family (four sons) we packed up and moved to Ottawa in 1958.

After several different positions in the radio station licensing area my later appointments were in licensing administration and computer services.

Retiring in 1971 after 35 years of service we moved to Penticton in the Okanagan Valley of B.C. where we presently reside, hobbies include amateur (ham) radio under the call sign VE7LG, golf, gardening and looking after 1/2-acre of property with cherry trees.

In the early days of flying, airports were known as "Air Harbours" according to Captain Jimmy Bell, the first Airport Manager of Blatchford Field (Edmonton Municipal Airport). *Norman Larson*

LARRY NELSON
Radio Inspector

Larry Nelson, radio operator and later a radio inspector with the Department of Communications. Larry wrote this account for us in Kaleden, B.C. 1990. where he retired to in 1971.

Larry is included in the group photo of the Whitehorse Radio Range Staff 1943 on page 13

My interest in things electrical started in 1929 with attendance at the Provincial Institute of Technology and Art in Calgary, Alberta. The course in Practical Electrical Engineering was not completed for lack of finances and due to a nervous disorder.

In 1932 I saw my first Ham amateur radio station, operated by Bill Lawrie, VE4IN, in a grain elevator at Kirkcaldy, Alberta. He was very patient in teaching me the code and the rudiments of amateur radio. In those days the formalities of amateur exams and licences were treated very casually so I fired up my home-built station in the same year. We had no power at the farm so I managed to acquire a set of dry cell batteries from the rural telephone company. A hundred of these and a 201A got me a few contacts locally. My first distant station 'DX' was VE4HB at Ghost Pine Creek, on January 2, 1933. Unfortunately Ray is now a Silent Key.

In 1933 I had a visit from Bill Stunden, the radio inspector from Calgary and my operation was made legal with an Amateur Certificate and Licence VE4NN. My hamming continued spasmodically up to the present time with Packet, Teletype and all those goodies VE7CP.

In 1950 my wife Blanche got her Amateur Certificate and this made it possible to communicate home from the radio inspector's car when I was on the road in Manitoba. In 1972 my daughter Deanna got her licence and in 1984 my daughter Lorraine joined the Ham ranks.

In 1934 I took the commercial operating course at the Marconi School in Toronto. It was there that I met Bruce Marshall and thus began a very good relationship which lasted until his demise in Penticton in 1983. At exam time I decided to improve my employment chances by taking the 1st class exam instead of the 2nd class test. This proved to be a good move as I was taken on by the Ontario Forestry Branch right away.

From 1935 until 1937 I worked for Ontario Forestry Branch at its radio stations in Ontario at Hudson, Woman Lake, Goose Island and Red Lake. In Red Lake I met Blanche DesChenes and we were married in 1937.

In 1939 I joined the Department of Transport (D.O.T.), and we drove our 1937 Chev from Kenora, Ontario to my first posting at Coleman, Alberta. This was a small station near the Coleman emergency landing strip. Duties consisted of weather reports and communications for the very rare landings at the emergency strip of Trans Canada Airlines familiarization flights. On the trip to Coleman we visited Dusty Weaver at Maple Creek, Saskatchewan. Dusty was a skilled operator in Morse and Landline codes. It was great to meet him after radio contacts in the Ontario Forestry.

In 1938 I managed to get a posting to Calgary and reported to the Civil Aviation Engineer at the new Calgary Airport. The airport was just being finished and had no buildings of any kind. Jeff Williamson, radio engineer, arrived in due course and we started work on the radio range. Eventually a building from the airport in north-east Calgary was moved onto the new airport. This single building housed our range office, the meteorological service and the TCA flight service, including its transmitting equipment. It goes without saying that the din and confusion was horrendous. After some time S. A. Shatford, the new officer in charge, arrived on the station and the new administration building was used.

In 1940 I won the competition for radio inspector in Winnipeg and embarked on the inspection career which included station inspections, examination, interference location and the very distasteful job of prosecuting unlicensed broadcast listeners. In 1942 our department suffered funding cuts and I was sent to the Winnipeg Range and then to the monitoring station. When our department would not release me for active service in the RCAF I transferred to the Radio Range Station in Whitehorse, Yukon. Russ Travers was the officer in charge there, and when he left in 1945 I took over his post. This was a very interesting and pleasant assignment.

At the end of the war I transferred back to my old job in Winnipeg and back to radio inspector duties including the miserable prosecutions. In 1953 I was made inspector in charge of Regina and shortly thereafter broadcasting licences were dropped - what a relief.

In 1956 I returned to Winnipeg. One year later I moved to Ottawa to work with Frank Foster in broadcast licence processing. This was very interesting work but I found the working conditions in headquarters very difficult and demanding.

In 1961 I finally reached my long term goal of being appointed Regional Superintendent of Radio Regulations in Edmonton. This was certainly the highlight of my career and I enjoyed being in the swim of things at a time when many changes came about.

We left D.O.T. and became part of the new Department of Communications. We opened a second monitoring station at Fort Smith, NWT and started a new radio inspection office at Whitehorse, Yukon. This made our empire rather impressive with four inspection offices and two monitoring stations and a staff of more than 50.

In 1971 a reorganization of radio regulations resulted in the closing of the Edmonton regional office. At this point I elected to take early retirement rather than submit to a move to Winnipeg so close to the end of my career.

In late 1971 we sold our house in Edmonton and moved to Kaleden, B.C. where we owned a piece of property. After two years of house building we enjoyed a happy retirement.

O. E. (Ernie) BROWN

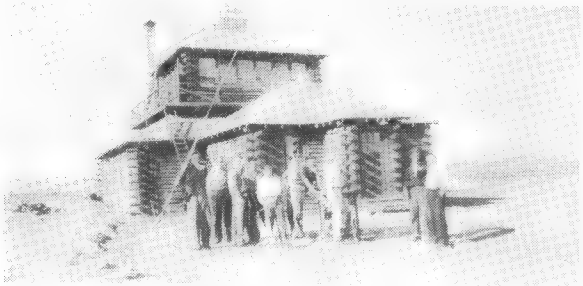
Ernie Brown held many positions and served at various stations with the Department of Transport. He wrote this account for us in Ottawa, Ont. 1990 where he retired to in 1976.

AISHIHIK 1943-44

As an Ontario farm boy I completed high school at Bradford, Ontario, in 1939, studied radio at Canadian Electronics Institute in Toronto, and qualified for the 2nd class radio operator ticket in April 1941. I volunteered for deep sea duty and was immediately assigned as second operator on the S.S. Maasdam of the Holland-American Line sailing from New York. The first convoy trip to Liverpool took 21 days to cross and while there I endured the blitz of May 1941 (lots of fires). On the second convoy in June Maasdam was torpedoed and sunk. I was picked up by MV Havprins (Norwegian Tanker) and landed at Bristol. Later I was assigned as second operator on the MV Tuva, which sailed to Iceland, and while enroute to Tampa in October was also torpedoed and sunk. I was rescued by HMCS St. Croix and landed overnight at St. John's Nfld., then to Halifax where I was paid off.

I joined the Department of Transport in January, 1942, at Ottawa Monitoring Station, then transferred to Northwest Staging Route in early 1943, taking a period of training in the temporary school in Edmonton Stores. I went on to Aishihik in May, 1943, transferred to Swift Current in July, 1944, to Dafoe in the fall of 1944, to Fort Churchill in the fall of 1948 as officer in charge to Regina in 1953 and on to Winnipeg office in 1955. I moved to Ottawa in 1960 and retired at end of December, 1976.

At Aishihik we were not always a happy crew, but memories now are of the fun times with Otto Rajaaho and the gang. Swift Current in 1944 was a brief interlude as relief operator. At Dafoe I was receiving officer for all the freight and express shipments, and the 'gofer' during the period of equipment installation. I got married in 1945. At Fort Churchill in 1948 being officer in charge was a new experience and operating a CW (continuous wave) circuit for Canadian Pacific Airlines kept the dayshift interesting. Winters of snow and blowing snow were another experience. At Regina in 1953 we enjoyed the change to city living. In 1955 I moved to the Winnipeg office, the job of travelling the region including some northern trips. I got into the radar training program and that led to a transfer to Ottawa in 1960, where we had an interesting time until my time was up at the end of 1976. I'm enjoying retirement at the same stamping grounds we travel around by motor home.



Aishihik Radio Range Building and Staff

COWLEY IN THE GUMBO - 1942

Ross Perry

Ross Perry, radio operator, held various positions with the Department of Transport. Ross wrote this account in Sidney, B.C. 1990, where he now enjoys retirement.

In the Spring of 1942 I was employed as a relief radio range operator in the central district of aviation radio, Department of Transport with headquarters in Winnipeg, Manitoba.

There was a flu epidemic at the Penhold (Red Deer) Station and I had been sent in to help Archie Wicks keep the station in operation. So for a week we worked 12-hour shifts each until the rest of the staff were able to come back to work. Overtime pay was unheard of in those days and we never even got a 'thank you'. It was just considered part of the job. After I had been there a month I got orders to proceed to Cowley, Alberta. to provide holiday relief. All I knew about Cowley was that it was the first station west of Lethbridge and that the station identification was YM, which I later was informed meant: God-Al-Mt-Ty Gran-Ma.

Ross Perry radio operator at Cowley, Alberta 1942

Cowley Radio Range operations building and staff house, 1945

I arrived at Cowley by bus about 11 p.m. and called the airport to report in and was told to check into the local hotel and someone would be in to pick me up in the morning. I did so and had breakfast the next morning at the Chinese cafe. While waiting for my ride I walked around the one block of the town and found Cowley consisted of: a railway station, hotel, Chinese cafe, general store, garage and about eight or so houses. Plus of course the Cowley Radio Range Station just to the West of town on the north side of the highway. The airport I later learned was three miles north up the valley and five miles away by road.

Bill McIntosh picked me up with the D.O.T. panel truck sometime later and delivered me to the radio range office at the airport where I met the Officer In Charge, Tommy Davidson. I was told I would have quarters in Dwelling #2 and would start work that night at midnight (the normal shift for relief operators).

I was given a quick tour of the station and told the local geographical features necessary to issue hourly weather reports and the teletype information to forward them. I then presented myself to my new landlady, Beth McIntosh, a fine person, at Dwelling #2. I was captivated by the sign on the back door simply stating: "Please Slam Door Quietly, There's probably an Operator Inside Trying To Sleep". I was shown to my quarters, on the second floor, which was one large T-shaped room. Occupying a large part of the room was a ping pong table which I found encouraging as I had become somewhat proficient at the game while living at the YMCA in Winnipeg.

I settled-in to the station routine easily (after all I was getting to be an old hand at this - Cowley being my sixth station in the past 10 months). I continued to work the midnight shift for a few more nights and then came 'shutdownday' when the radio range equipment was turned off an hour for routine maintenance. As I was the 'new guy' I got picked to assist the officer in charge in this enterprise. As it was raining we were unable to travel the 'gumbo clay' roads with the panel truck so we obtained two horses from a nearby farmer and covered the five miles to the radio range on horseback. This was no problem for me as I had been brought up on a farm in South Western Manitoba and had been around horses all my life. We did the routine maintenance to the officer in charge's satisfaction and returned to the airport, where I was permitted to return the horses to the farmer and walk back to the airport in the mud.

Following this test I appeared to have passed and was accepted into the staff as competent, which meant I could work the evening shift and two dayshifts, one a month. Heavy stuff.

Spare time at the airport was spent in studying for Barrier Exams, reading or listening to the radio, playing ping pong or pitching horseshoes, a game I was also familiar with because of my background. Bill McIntosh was the resident ping pong champion and Ron McNeil was the resident horseshoe champion, titles I strongly contested but I must admit when I left Cowley they were both still champions. The horseshoe pitch was situated beside the two-story radio building and one evening Ron and I were involved in a serious game when it started to get dark. Nothing daunted us, we wrapped the pegs with white paper and went on with the game. Soon it was really too dark to play but we kept at it by pitching a shoe and listening for the clang at it hit the peg. This was fine except Ron pitched a shoe and the only sound we heard was laughter coming from the walkway around the second storey of the radio building. John Rosenthal was on duty at the time and he had just leaned out and picked off Ron's shoe in midair, much to our consternation. Then we all started to laugh at ourselves and that finished the game.

Social events off the airport were of course very much dependent on transportation. They consisted of the occasional dance, movie or party in the nearby towns of Lundbreck, Blairmore or Pincher Creek (birthplace of Matthew Halton of CBC News broadcasting fame). A trip to Lundbreck was mandatory for the newcomer as the hotel there had the only two-story outhouse in Western Canada. Another local attraction was the Turtle Mountain Playground a combination swimming pool and dance hall beside Highway 3. The dance hall was famous for its floating floor which was mounted on rubber tires and was quite something.

After three months at Cowley I got orders to proceed to Calgary for holiday relief there, but of course it was raining again so I hired a farmer with a team of horses and a buggy to drive me to the bus in Cowley. I still remember he charged me $5.00 but I was able to claim it on my expense account by calling it a 'horse cab'.

There were other stories about Cowley that I have not told in detail here, like the time I was trapped in the radio building when I went out to take the temperatures because there was a two-foot porcupine sitting on the front step and wasn't about to move, or the time John Rosenthal did a handstand on the top of the 145-foot radio range tower while I took his picture, or the time the panel truck skidded on wet planking on the Oldman River bridge and crashed half way through the railing. If it had gone another foot we would have lost three-quarters of the operating staff in the raging river 20 feet below.

I found my first trip to Cowley to be an unusual experience to say the least, certainly different than any other station. My personal opinion was that the only thing that made it tolerable were the people, they were special. I was to come back again to Cowley a second time in the fall of 1942, but somehow it seemed different. I guess it's true when they say the first time is always the best time.

The memories die hard, even after nearly 50 years, we tend to just remember the good times and try to forget the boredom, the monotony and the never-ending shift work. It was bad enough for the operators, but at least they had their work. It was deadly for the wives, which was borne out later. I was lucky, I was there only four months in all but some operators I knew later, resigned their position rather than accept a posting to Cowley in the 'gumbo'.

NORTHWEST STAGING ROUTE

NORMAN LARSON

Norm Larson served as a radio operator with the Department of Transport and served at many stations throughout his career in radio. Norm retired here in Lethbridge and is a member of the Lethbridge Historical Society. He prepared this account over the past few years, and has gathered all the information within this publication.

It was the 29th day of November 1942 when I reported to the Department of Transport office in the Tegler Building in Edmonton. From the telegram that I had received in Prince Rupert, the government required radio operators with a Second Class Certificate of proficiency in radio and also would be required to go north to an isolated airfield somewhere in northern Alberta, British Columbia or the Yukon.

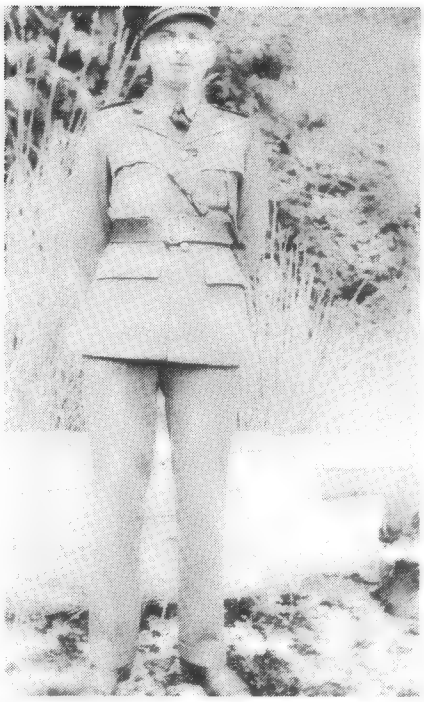
My wife Ruth and I had just arrived in Edmonton the night before at the tail end of a very severe storm that had swept the prairies and left the city deep in snow and extremely cold. Drifts covered most of the cars parked on the streets. We had arrived by Canadian National Railways from Prince Rupert where we left in the usual rainy season. We were not prepared for such cold weather, wearing only light clothing and carrying an umbrella.

When we stepped off the train in Edmonton, it was late at night. We knew no one and didn't have any hotel reservations. We carried our suitcases down 101st Street for several blocks until we came to a hotel where they had only one room left. We were very lucky as all hotel accommodations were completely full because of the influx of wartime workers, military personnel, especially American Army Engineers, and their civilian workers for the Alaska Highway.

My wife and I had only been married four days on our arrival in Edmonton. We had met in Prince Rupert early in 1942 when I was posted there as a radio operator with the B.C. Police. I had just graduated from King Edward High School of Commerce in the summer of 1941 with this radio certificate called Second Class Certificate of Proficiency in Wireless Telegraphy and Radio Telephony. This was a dream come true, which started on a farm in southern Saskatchewan where we owned one of the first battery radios in the 1920s.

When we moved to Vancouver in the 1930s. I continued my interest in radio getting my amateur licence in 1939 with the call sign VE5VX, also a certificate in radio servicing from Vancouver Tech. My main interest was to join an ocean-going ship or operate somewhere in northern Canada. My schooling for a radio operator came from attending Room 19 at King Ed High under the stern tuition of Mr. Lambert. Except for the last month or two, I was a night school student. Whether you were a night school student or regular day student, he inspired all to do their very best.

I passed the government exam in June of 1941. There were very few ocean-going ships on the west coast at this time as all the shipping was from the eastern seaports



Constable Norman Larson wireless operator, B.C. Police motor launch 15, 1942

P.M.L. 15 riding at anchor at Prince Rupert, B.C. 1942.

Japanese Canadian fishing boats interned 1942. Towed down to Steveston, B.C. for disposal.

hauling war materials to Europe. To join a ship on the east coast, one had to pay his own transportation costs and money wasn't too plentiful.

On December 7, 1941, Japan bombed Pearl Harbor, Hawaiian Islands. This brought the United States into the war. The west coast of Canada went into immediate action. A total night time blackout was imposed. All houses, apartments and office buildings, were outfitted with blackout shades so no lights could be seen from the street at night. Streetcars were also blacked out, only a small running light was allowed under the entrance step. Cars could not use their lights at night so this just about eliminated this type of transportation, except for street-cars. No one could strike a match or smoke a cigarette outdoors at night. Special police patrolled the streets at night to make sure there weren't any infractions.

I joined the B.C. Police as a wireless operator on the Police Motor Launch 15 a few days later. At that time the launch was being outfitted in Coal Harbor, downtown Vancouver. We departed Vancouver December, 20 for Prince Rupert arriving there on Christmas Eve, 1941.

For six months we patrolled the West Coast of B.C. from Butedale, 100 miles south of Prince Rupert, to Stewart B.C. near the Alaska border. During this time, people of Japanese ancestry were moved from the west coast of Canada to the interior of B.C. and Alberta. Their fishing boats were rounded up and towed in large raft formations to Steveston and vicinity on the Fraser River to be held until the end of the war. However, later they were disposed of by the Canadian government. For the next six months, I was posted to divisional headquarters in Prince Rupert.

During the fall of 1942, the war with Japan had stabilized and concentrated in the South Pacific but the threat of Japan cutting off Alaska from the mainland U.S.A. was still a very great possibility. In fact, a few islands in the Aleutians were occupied by the Japanese. The attack on Pearl Harbor left the U.S. with a very much weakened navy in the Pacific, and Canada had very little defence on the west coast. Most of the Canadian armed forces were either overseas or in eastern Canada. By this time, both Canada and the U.S. started to push an inside route through Canada from Edmonton to Fairbanks, Alaska via northern Alberta, northern B.C. and the Yukon. This route would consist of a heavy duty highway, a series of airfields, radio range stations and radio communications. This required a tremendous effort by both countries. The American Army had 16,000 engineers and civilians working on the highway at one time and they pushed this highway through in less than a year.

The government of Canada was responsible for the airports, meteorological services and radio communications which included radio navigational aids for aviation. At this time I joined the Department of Transport. A network of airports was constructed, initially Grande Prairie, Alberta, Fort St. John and Fort Nelson B.C., Watson Lake and Whitehorse, Yukon. Intermediate airstrips were constructed shortly after at Beatton River and Smith River, B.C., Teslin, Aishihik and Snag, Yukon.

About a week after arriving in Edmonton I was instructed to report to the Officer In Charge, Earl Walker, at the Edmonton Airport. He understood that I was an experienced operator and assigned me to the CW (continuous wave) radio position. That was just like catching a train going through a railway station at 60 miles an hour. This was a very fast circuit with very good operators. It took me a few weeks to get up to the circuit speed and to feel comfortable in the position.

The priority of this circuit was the weather collection every hour. These reports were handed in to the operators at their respective stations just a few minutes before the hour so that they would be ready for transmission on the hour. Whitehorse would start the weather sequence by sending CQ CQ CQ de VFDY then send the Whitehorse weather report along with satellite station reports such as Snag, Aishihik and Teslin. Then Watson Lake in turn followed by Fort Nelson, Fort St. John, Smithers, Prince George, Grande Prairie and Edmonton. Edmonton being the control station would call for any missed weather sequences for fills when necessary. Later, Fort St. John became the controlling station as it was in the center of the circuit and could hear all stations better. Any weather specials which occurred during the hour were immediately sent on the circuit interrupting any other traffic. Complete and accurate weather reports were essential for aircraft to fly this dangerous wilderness route safely.

Only at the main stations was there a staff of meteorological observers and even at these stations some of the weather observations were taken by the radio operators. One of the requirements of this job was to take weather observations, so I took this course in my spare time at the Edmonton weather station which was located next door to our radio room. Dr. Tom How was in charge of this meteorological station which consisted of the forecast centre, the weather observation station and teletype operations. All weather traffic from across Canada and the United States came into this terminal by teletype except from the north. Weather reports from northern Alberta and the Northwest Territories was handled by the Royal Canadian Corps of Signals through its main station located at Calder. Our circuit covered the Northwest Staging Route, Northern B.C., and the Yukon.

During the war years, all weather information sent by radio was coded so that signals picked up by the enemy could not be deciphered. At the end of the day, this information was burned. Weather sequences were sent in groups of five letters, later this was changed to groups of five figures. Copying figures was a lot easier than letters if there was static in the air. We copied these sequences on typewriters outfitted with large capital letters and figures. Later when weather was sent in a weather code, our typewriters were fitted with symbols that could be easily read.

This CW radio circuit was in its prime up to the end of the war when it was superseded by teletype. These used telephone lines which ran alongside the Alaska Highway and were operated by the Northern Communications System. The CW circuit was kept in good operating condition for quite a number of years as back-up in case there were line

outages. Outages occurred quite often during spring when highway and telephone lines would be washed out.

In 1940, the Lethbridge Weather Forecast Station was relocated to Edmonton. The reason for this was the main Trans Canada Airlines traffic had now shifted its routes across Canada through Calgary and Edmonton. Up to this time, Lethbridge had been the main divisional point and planes flying over the mountains were required to refuel because of the limited load capacity. With larger aircraft such as the Lockheed Lodestars and Douglas DC3s, the shift was made to the larger cities. Also, in readiness for the large amount of war aircraft that would fly the Northwest Staging Route.

Although Dawson Creek was Mile Zero for the start of the Alaska Highway, Edmonton, was really the starting point for the large number of Lend-Lease planes that channeled through Canada from the United States to Russia. These aircraft such as P39s, P63s, B25s, A20s and others all had the Russian Red Star designations painted on their fuselage direct from the factories in the U.S.. These planes were ferried by American pilots to Alaska where they were turned over to Russian pilots to be used on the eastern front. The number of these planes that flew the route is estimated at eight thousand. One report tells of poor weather conditions from Whitehorse north, holding up planes at Watson Lake completely covering the field except for the runways and taxi strip.

The usual flight plan was for these planes to hop from Edmonton to Fort Nelson, refuel and then fly on to Whitehorse for refuelling before proceeding on to Northway and Fairbanks, Alaska. Although the larger planes had greater range, this was the standard flight for the pursuit planes. Fighter planes usually flew in formations of three with a larger plane as flight leader. The first time I ever made radio contact with one of these flights was in the Very High Frequency (VHF) band on 126.2 Mhz. (mega hertz) Before this, most air-ground communications took place on the Low Frequency (LF) or Short Wave (SW) frequencies. The pilots in the fighter planes were equipped with throat microphones which gave a very heavy bass transmission.

Other duties of the radio operator on the (CW) point-to-point communications position besides weather was to handle Canadian Pacific Airlines flight plans, cargo dispatches, government business, deadhead traffic which would be messages for construction companies engaged in building the highway, some Hudson Bay Company traffic, service messages, airport construction reports and other miscellaneous information.

The priority of traffic handling was: 1. Weather sequences, specials and other weather data. 2. Air traffic (i.e. flight plans), arrivals and enroute reports, 3. Notams (notices to airmen) re navigational aids, airport conditions. 4. Service messages, GB's (government business), DH (deadhead) traffic and other types of information.

An eight-hour shift wearing headphones concentrating on receiving and sending messages at a rate of 20 to 30 words a minute was quite exhausting, especially during heavy electrical storms and weak signal conditions. I can remember after doing a shift, I would be literally bathed in sweat. Hearing would be impaired for several hours after such a shift.

The radio range operator had a variable receiver to cover the radio range band of 200-400 Khz. He monitored his own range continually except when he checked the courses from the adjacent ranges. Two fixed frequency receivers on 3105 an 6210 Khz were always monitored for aircraft transmissions. Operators broadcast the regular weather sequences once per hour and specials when received. Everything was recorded in the Process-Verbal log book. All information, such as operators signing on and off shift, times away from the position, radio contacts with aircraft monitoring of adjacent range courses, change-over of range transmitters, failures, etc were logged with the time each event took place and ended.

At Edmonton there was also a centre position which handled Canadian Pacific Airlines traffic on 5390 Khz and Western Airlines on 4495 Khz. This position was also used for additional CW traffic when necessary. The monitor position which was back of the operating position was handled by Dusty Weaver our monitor chief. Besides keeping tabs on the circuit operations, he would also handle traffic when necessary. There was also a traffic circuit with Ottawa which he usually handled. He dearly loved to work CW and was very happy to work a station with a lot of traffic. He certainly was a good example to younger operators.

The radio range equipment was the standard used at all range stations - two 400 watt Marconi or Radio Receptor transmitters. Only one could be used at a time, if one failed, the other came on automatically. They could also be dialed on from the remote operations position. These transmitters fed four steel, 125-foot towers through a gonio which produced four courses. Basically, these courses were North, South, East and West but could be squeezed or bent as required so a course could be pointed toward another city or intersect an adjacent course. These courses were flyable to a distance of approximately 100 miles under normal conditions. Radio range stations were located approximately 100 miles apart. Directly over the range station there was a cancellation of signals and no courses heard. This was called the cone of silence. A small 10 watt transmitter located in the range building sent up a cone shaped signal which gave the pilot a true indication that he was directly over the radio range site. These transmitters were called Z markers or Cone of Silence Markers. They operated on a frequency of 75 Mhz.

At the transmitter site were the usual standard communication transmitters. For long wave on 197 Khz was a 500 watt Marconi transmitter. These were later replaced with RCA 2 Kw units. For short wave frequencies, there were two AG500 watt transmitters. A dual channel AT3 capable of 300 watts was used for radiotelephone communications.

All radio ranges had their own emergency power plants. These would come on immediately when there was a power failure. At most sites, power was provided by commercial companies. .However at remote airports the

power was provided by airport generators. All emergency plants were looked after with great care and run on a test basis for an hour every week.

In the spring of 1944, we were able to rent a small four-room house on an acreage in the Calder area just northwest of the Edmonton airport. This was a very welcome change after living in one room apartments for more than a year. However, our stay was short lived as I was posted to Fort St. John, B.C. in November, 1944.

We flew by RCAF DC3 to Fort St. John. The trip took about four hours with a stop at Grande Prairie. It was a rather cold trip as the aircraft wasn't lined inside like the passenger planes. We sat on webbed seats along the side of the fuselage. In the middle of the plane, our baggage and other cargo was strapped to the floor.

We moved into a vacated Department of Transport house on the airport. At this time, the Fort St. John Airport had a large U.S. military establishment based there. They manned both the east and west gates with military police. Security was very tight. There were approximately 15 radio operators and five meteorological observers working on the base. Canadian Pacific Airlines also ran its service from a small hotel on the airport. They also had a hangar as well. This was a divisional point between Whitehorse, Vancouver and Edmonton.

The only transportation the D.O.T. had was a Chev 1/2 ton pickup truck. This vehicle made daily trips to the town of Fort St. John, four miles west of the airport. These trips were usually made by off-duty operators in the afternoon. These runs were essentially mail but grocery pickup for the single men's barracks and married personnel combined made the trip worth while. The cab of the truck could hold three or possibly four otherwise a closed-in wooden box on the back with a couple of wooden benches was available for additional passengers.

Fort St. John was still a small town but growing very fast because of the Alaska Highway which skirted it to the west. The main buildings were the Condill Hotel, The Sisters of Providence Hospital, several stores, butcher shop, garage and the government telegraph office. The main street and side roads were gravelled but became quite sticky in wet weather. Wooden sidewalks ran for a block or so along the main street.

Several times a week, the U.S. military showed the latest films and everyone on the airport was welcomed to see them free. Sometimes there were travelling celebrities, one of these was the famous boxer Joe Louis. These activities took place in a large recreation hall which wasn't very well heated. During the winter, they would fire-up a Herman-Nelson aircraft heater outside and pipe the heat into the building. We would all sit in bunches close to these warm air ducts. Dances where held in town but for most of the married D.O.T. people, card games and house visiting were the social life.

Two dates that come to memory are April 1, 1945 when our first child David was born in the Fort St. John hospital, and the other was the death of U.S. President Franklin D. Roosevelt on April 12th. This was quite a stunning blow because the alliance between Roosevelt, Churchill and Stalin was very strong and was bringing the war in Europe to an end.

The European war ended May 8th. The American side of the airport erupted with a great amount of noise and celebrations for a short time, then all thoughts were turned to the war in the Pacific.

The war with Japan ended in August, 1945, very quickly after several atomic bombs had been dropped on their cities. Shortly after this, the American personnel started to depart for the United States. We took a transfer back to Edmonton in January, 1946, as our son required medical attention for his right foot. So after only a year at Fort St. John, we bid the Peace River Country goodbye.

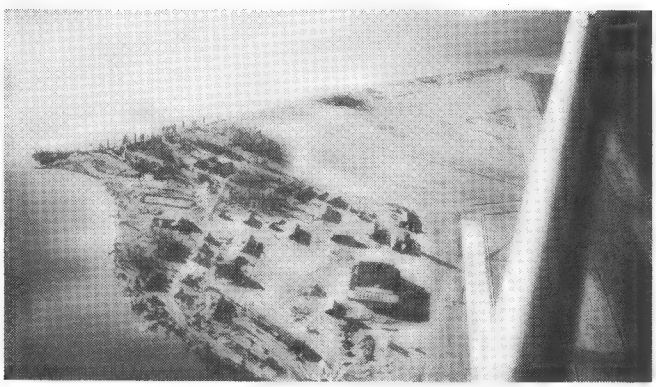
In Edmonton we occupied one of the wartime houses that our department had been able to lease for the radio operators. These houses were mainly in one group east of the airport around 102nd Street and 119th Avenue. These houses were a great help when housing was in such short supply and the ever rotating staff. The small group of houses became known as Radio Alley.

We were in Edmonton from 1946 until 1949 when we were transferred to Watson Lake, Yukon. During our stay in Edmonton, our first girl Ellen as born.

Although the job became rather routine, it was necessary to keep up with new radio developments. There were several exams which were called Barriers 1 and 2. Passing these qualified one for advancement and a higher pay. There was a two-year spacing between examinations. With the installation of an Instrument Landing System (ILS) in Lethbridge, the department put more emphasis on technical knowledge. A new classification was established for electronics technicians. Their job would be installation and maintenance of all electronic equipment on a station. To fill these new jobs, recruitment came from the radio operator ranks and later was opened to hiring from technical schools.

With the surge of commercial flying after the war, airlines demanded increased radio navigation aids. Instrument Landing Systems was one of the main aids for scheduled flying. Flyers were very pleased with this type of landing assistance as they were completely in control of their airplanes, whereas with Precision Approach Radar, a radar controller talked the aircraft down to a landing.

Air-ground communications started to shift from the long wave and short wave bands up to the VHF spectrum. In the earlier days, long wave consisted of radio range band from 200-400 Khz. The airport control tower was also in this band on 278 Khz. Then partway through the war, aircraft, especially fighter planes started to use the VHF band because of the lighter equipment and less power required. This air-ground band was 118.0 Mhz to 135.0 Mhz. One of the first frequencies used was 126.2 Mhz. Eventually more and more of the VHF band was used until all air-ground communications had switched to this higher band.



Watson Lake Airport 1952

Watson Lake D.O.T. Baseball team 1951
rear: RCAF Cpl. ?, Don McCann - school teacher, Jim Essex - OIC radio, Wilf Blezzard, - met, Bill Jarratt - radio opr.
front: John Chomyn - radio operator, Sandy McCallum - met, Bert O'Hanley - CPA agent, Art Dear - RCMP, Norm Larson radio opr.

In 1949 we were transferred to Watson Lake, Yukon Territory. Due to the decline in (CW) point-to-point communications, only six or seven operators were based there, whereas during the war years this station had a complement of 15 or so operators. The meteorological staff still had a normal complement of five. We arrived when five new houses were in the final stages of being completed. Up until that time, the majority of operators were single and lived in a large barracks which had been built during the war to house not only single operators and met (weather) men but for some of the construction crews as well as itinerant D.O.T. personnel. Later, this large barracks was converted into suites for married personnel.

We spent six and one-half years at this station, adding two more to the family, Lori and Don, which now numbered six plus a dog. These were great years living on a lovely lake with good fishing. Winters were long and sometime very cold. For weeks on end, the temperature would hover down in the minus 30 to minus 40 degree Fahrenheit range. At these temperatures, there was very little wind. Smoke from chimneys would rise straight up for 25 to 30 feet. During the short days of winter, the sun would only be seen for several hours per day. However this was offset by the long days of summer when daylight would be for 22 to 23 hours with only twilight the remaining hour or so. The long winter nights lent themselves to much social activity such as bridge games, picture shows, house parties, square dancing, curling and a lot of activities at the RCAF canteen.

The air base was operated and run by the RCAF. They generated the station power with two Caterpillar diesel engines which supplied all the airport needs. Our water supply, sewage and fire departments were also operated by them. They also looked after the maintenance of the runways, roads, terminal building, maintenance garage and their own dwellings. They had 10 to 12 houses and six to eight suites on the base. The D.O.T. looked after the radio range facilities and communications along with the meteorological services. The radio staff looked after their own housing needs and staffing at the D.O.T. barracks. The RCMP had a detachment located on the airport consisting of the officer in charge and one constable.

The closest town was a place called The Wye, because the road from the airport to the Alaska Highway met at such an angle as to make a Y junction. This town was eight miles from the airport. It consisted of a hotel, a small store, garage and the Northern Communication System landline station. This now is called Watson Lake. The next town down the highway 25 miles was Lower Post, an early Hudson Bay Company trading post on the Liard River. This post had been there since before the turn of the century during the great fur trading era.

As part of the D.O.T. social life on the Watson Lake Airport, we were able to rebuild the radio station CKWL and put it on the air. The only thing left from a previous station were the call letters and a few records. To make money to build a transmitter, buy turntables, phono-pickups, and microphones, we organized a Little Theatre group and put on several stage plays which netted us about $400.00. This bought enough parts and records to put us on the air. This radio station operated on 1220 Khz, with a power of 25 watts which covered a radius of approximately 25 miles. This radio station was located on the 3rd floor of the tower which was part of the administration building. The station was very modern with a glassed-in studio.

The station went on the air with 18 volunteers. The morning hours were nine to 11, operated by our wives. From noon until 1 p.m., several men took turns announcing the news, airline schedules and weather reports. In the afternoon some of the older school students took over for a couple of hours. After supper, again the station was operated until eight p.m. when radio stations from the south could be heard.

Outside of our own programs and personal records, we received a weekly shipment of electrical transcriptions from the Canadian Broadcasting Corporation. Each record had one hour of programming and was the latest produced. Such programs as The Wayne and Shuster hour, Maple Leaf Ballroom and others were well received.

The CBC sent a weekly box of these records to Dawson City, the first station on their list. When finished, Dawson sent these on to Whitehorse and they in turn sent them on to us at Watson Lake. After playing, we would box them up and ship them via Canadian Pacific Airlines to

Royal Canadian Corps of Signals, Calder where they would send them up to Yellowknife and north. As these records were free from the CBC our only cost was sending them on to the next station. CPA took care of this as their contribution to the social life of people living in the north. Besides these programs, we received approximately 25 new records a month from various recording companies. These were free except for shipping charges. They requested that their recording company be mentioned when their particular record was played. Keeping track of all these records kept two of our volunteers busy cross-indexing and listing for easy identification and playing.

In 1951, a school was started on the airport as the magic number of seven children were of school age. This was a government run school and classes went up to Grade VIII. A little later, pupils taking high school subjects by correspondence were helped as well. The school was a one room log building which had been converted from a store house. This school had electricity, running water and was heated by an oil stove. The children were from the RCAF, D.O.T., Wye and an Indian family that lived near the airport. When temperatures got down below minus 50F, school was automatically called off. It was too cold for the school bus to operate and too dangerous if anything happened.

Watson Lake was a very desirable place to work. Relations with the RCAF were excellent. As most of the personnel on the air base were young married couples, there was a great concentration of children. Summer time was a lark for everyone. Most people had boats and did a lot of fishing and ball playing. Winter was a little more strenuous as everyone had to dress real warm. When kids got together to play usually in some one's house, the back hall would be completely cluttered with parkas, snow suits, snow boots and mittens.

One of the most unforgettable couples that lived at the Watson Lake Airport for many years was Vic and Katie Johnson. Many people have fond memories of this couple. Vic for his wisdom, placid nature and great strength, and Katie for her pleasing manner, dedicated work and the caring of many foster children.

All good things eventually come to an end. I was promoted from a radio operator to an electronics technician at Lethbridge. So after more than six years at Watson Lake, we bade farewell to the Yukon in November, 1955.

Katie and Vic Johnston, Watson Lake - 1976

U.S.A. MILITARY AIRCRAFT C119 (Flying Boxcar)

An incident during my operating days at Watson Lake.

Norman Larson

I was working the day shift at the Radio Range Station, Watson Lake, Yukon on a Sunday afternoon in the summer of 1952 when Will Hockins, one of the local weather men burst into the office wanting to know if there were any planes in the vicinity as his daughter had just fallen off a building onto a concrete floor and was badly injured, requiring medical attention at Whitehorse. All was quiet, no local bush pilots or itinerant planes were flying and no aircraft activity on the airport. There was only one aircraft coming up the line making its way from Great Falls, Montana to Fairbanks, Alaska. It was a U.S. Military C119 Flying Boxcar. As heard over sked "F", a speed telephone line direct to Edmonton Air Traffic Control from all radio range stations, he had last reported over Ft. Nelson and was just about over Smith River, 100 miles southeast of Watson Lake.

I told Will about this plane and would attempt to get in touch with the pilot as soon as possible. I gave U.S. Military C119 a radio call, he replied he was over Smith River and estimating over Watson Lake within half an hour. I informed him about the injured little girl and her need for medical attention at Whitehorse. Without a question, he asked for air traffic clearance to the Watson Lake Airport. I called Edmonton for a clearance for this C119 to the Watson Lake Airport for an emergency pickup. Clearance was given and relayed to the C119 pilot. Immediately, he commenced his descent and asked for the Watson Lake altimeter setting, wind speed and direction, runway in use - the longest one available and the height of both ends of the runway. He was fully loaded and required all the runway possible and to make use of any upgrade of the runway to assist the aircraft to come to a stop.

All information was given, altimeter setting, wind was calm and the runway was 07 which would bring the aircraft in over the lake and land on the lowest end of the runway. He was advised that no other air traffic was reported in the local vicinity and he was to land at his own discretion.

The C119 landed within minutes and was waiting on the ramp before Will Hockins had time to drive to the other side of the airport, pick up his wife and daughter and get back again.

The captain of the C119 and about six members of his crew came into the radio office for a few minutes to refile their flight plans and to make a stop at Whitehorse plus to have customs meet them on arrival. In their original flight plan from Great Falls to Fairbanks, they had no scheduled stops in Canada, so Canadian Customs was not necessary.

With Mrs. Hockins and daughter onboard, the C119 departed Watson Lake and landed in Whitehorse shortly thereafter. From there they continued on their way to Fairbanks, Alaska.

The little Hockins girl was hospitalized for several days, had no ill effects from her ordeal, and returned to Watson Lake a week or so later.

It is thrilling to relate this story, to think a captain and his crew flying a fully loaded C119 Flying Boxcar on a military mission, would without question carry out a mission of mercy without regard to their own inconvenience. A real tribute to human concern and kindness. To the captain and crew of the C119, wherever you may be, again, thank you.

Note: All aircraft have an identification number or flight number but this particular aircraft identification has been forgotten. In this story the actual aircraft type has been used. Norm Larson

FAIRCHILD PACKET C119s were also used by the RCAF. The RCAF took delivery of its first Fairchild C119 Packet in 1952. The C119, more commonly known as The Flying Boxcars, a twin-boom, twin-engined freighter and troop-carrier was flown by both No. 435 and No. 436 Squadrons of Air Transport Command.

The C119 could haul a 10,000-pound payload 1,500 miles non-stop. Its load may have consisted of 62 fully-equipped paratroops; or 35 stretcher cases and four assistants; or, the equivalent weight of cargo. The aircraft was equipped with rear-opening, clam-shell doors which permitted fast efficient handling of lengthy, bulky load.

Canada's decision to provide United Nations Expeditionary Force with an air transport support element afforded Air Transport Command a "live" exercise in mobility. Late one Monday night in November, 1956, 435 Squadron then based at Namao Airport, near Edmonton, received a warning that it might have to move, lock, stock and barrel to the Middle East. At eight o'clock the next morning the alert became a reality and two hours later the first C119 was on its way to Toronto.

At Toronto RCAF markings gave way to the blue and white insignia of the UN and in short order, 12 aircraft loaded to the doors with spare engines, propellers, ground handling equipment, tools and men were winging their way across the Atlantic to the Mediterranean Sea. Within days after the movement order had been received at Edmonton the first RCAF C119 swung into service with the UN.

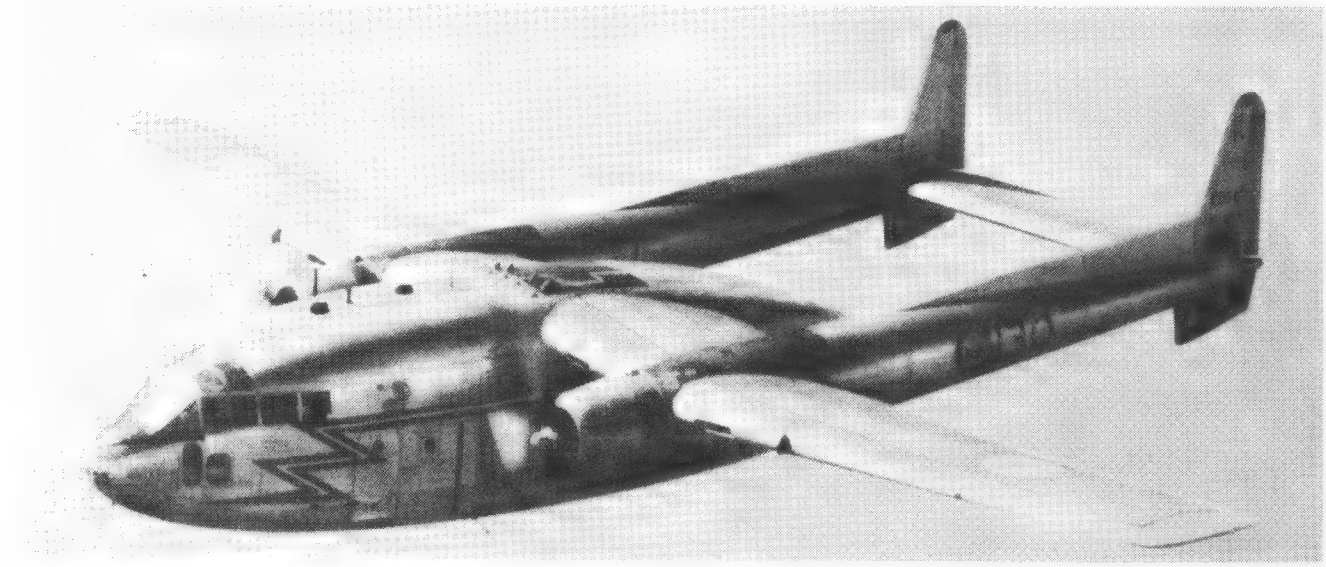
From Naples airport in Italy 435 Squadron operated with all the urgency of war. All manners of cargo and personnel of many nations were airlifted into Egypt to help start an historic world police force.

In January 1957, UNEF airlift requirements changed and 435 Squadron returned to Canada. Taking its place were two Air Transport Command elements: 114 Communications flight, equipped with four C119s and 115 Communications flight, equipped with two Dakotas and four Otter aircraft. Based at Naples and flying shuttle between Italy and El Arish was 114 Communications flight, 115 based at El Arish, was doing reconnaissance, communication and medical evacuation operations in the Sinai.

Scattered throughout the Arctic are joint U.S.-Canadian weather stations, RCMP detachments and Department of Transport weather and radio bases. Each spring and fall these units are resupplied by aircraft of Air Transport Command. More than a million and a half pounds of all types of cargo are airlifted. Jointly carrying out these operations with Flying Boxcars were 435 Squadron based at Namao and 436 Squadron at Downsview, Ontario. The C119 ended its service engaged in routine domestic airlift and in providing air transport support for the Canadian Army. Intended to have superseded the Dakotas, but that was not to be the case, the C119s were retired from RCAF service on July 28, 1965, and the Dakotas, the 'old workhorse' carries on.

A few Fairchild Packet C119 Specifications:
Power Plant: Two 3,500-h.p. Wright Whirlwind R3350-85 engines.
Dimensions: Span, 109 ft. 3 in. Length, 88 ft 9 in, Height, 26 ft. 3 in.
Weights: Empty 39,800 lbs - Gross 74,000 lbs.
Performance: Cruising speed, 260 m.p.h.; service ceiling 23,900 ft.

Photo below: A C119 that served with 435 and 436 Squadron RCAF



A TRIBUTE TO ED GILBERT

Tom Robinson

Tom Robinson, radio operator with the Department of Transport, wrote this account of Ed Gilbert which appeared in the January 21,1971 issue of the Whitehorse Star

Edward Arthur Gilbert had many facets to his character and the boy from Lumsden, Sask. became, quite literally, "known throughout the world".

In the Yukon, he was Ed the Department of Transport man, Ed the musician and Ed the Fish and Game man. To the rest of the world, together with his wife, Mary, he was the genial voice of VE9AE, the call sign of his amateur radio station. In other words a Ham.

As D.O.T. man, Ed was in charge of the Laberge Beacon site for a period from the end of the war, until the construction of the Dawson Highway.

The greater portion of this period entailed a life of almost complete isolation, supplies and mail, medicines and other vital necessities being delivered by sternwheeler in the open season and sleigh at other times. Power for the house and equipment building was produced from Diesel-driven generators.

I recall Ed telling me about the wheelbarrow they used for hauling their supplies from the river bank up to the site after the ship had unloaded them. Ed would be on the handles and Mary hauling the tow ropes, or vice-versa.

They had a balky cook stove there at one time and I recall one occasion on which Ed was lying on the kitchen floor blowing into the bottom of the stove while Mary was on the roof by the chimney waving a towel in order to create a draft.

Their only communication with Whitehorse, for a long time, was via Morse code at scheduled times. A great improvement in their life was the acquisition of a Bren Gun Carrier, at a later date; in this way they were able to make Whitehorse in five or six hours using a trail which snaked away past the Takhini Hot Springs.

With the opening of the Dawson Highway, the need for constant attendance at Laberge ended and Ed, his courageous wife Mary and little daughter Sharon, moved into Whitehorse. They lived there until Ed's retirement in 1967.

As a Ham radio operator, Ed made contact with other Hams throughout the world, many of the world's remote corners and several Arctic and Antarctic expeditions.

During the Alaska earthquake when Alaska was literally isolated by the severing of submarine cables and power failures ashore, Ed and Mary were on the air for many hours to another Ham in Alaska, and over that period were the only link between Washington and the devastated areas; Washington passing its essential traffic to 95, Valleyview for passing on to Alaska.

While at Laberge, Ed was able to solve a troublesome problem in the navigational fan marker and sometime later, while hamming with a U.S. Federal Acronautical Administration technician in Hawaii who was experiencing the same problem, was also instrumental in solving the difficulty in Hawaii.

Active in the Fish and Game Association, Ed usually got his moose, made excellent sourdough pancakes for the Rendezvous breakfasts, and during the tall story competition at the annual banquet "was the most truthful liar I have ever encountered".

He played several musical instruments and was a sensitive and very competent musician. I remember him best one night at the Gilberts with my family, Ed played the organ while we sang and I think Ed played every song we could recall.

He had a sense of humor which was almost impish at times and could usually see humor in what, to me, were deplorable situations.

His life spanned the inception of usable radio to its technological ability to guide men to and from the moon, and now it is ended. Many people in different walks of life in various parts of the world will join me in deep regret.

THE BURWELL STORY

Like Father - Like Son

Fred Burwell Sr. joined the D.O.T. as a radio operator in 1937. His first station was Lethbridge when they operated out of the Radio Range Building approximately where Fifth Avenue North and North Mayor Magrath Dr. intersect today. This was shortly before they moved to the present site of Kenyon Field (Lethbridge Airport).

He was the first officer in charge of the radio range station at Fort William, Ontario in 1940. Moving on to Sioux Lookout, Ontario in 1942. From here, he moved to Edmonton Regional Office as a Radio Technician in 1943.

He installed radio equipment at most sites on the Northwest Staging Route in 1942. He helped commission Aishihik and Snag Radio Ranges in 1943, at the same time closing down the Pan American Station at Burwash Landing, Yukon.

Son, Fred Burwell Jr. took up the same vocation as his father, going to the Southern Alberta Institute of Technology in Calgary for several years, graduating as an electronics technician in 1951. He joined the same department as his father in the electronics field.

Many changes occurred during the intervening time resulting in a new Radio Range opening at Burwash in 1966, which replaced the Stations at Aishihik and Snag his father had originally installed.

TESLIN, Yukon

Charles (Chas) Stredulinsky

Chas Stredulinsky radio operator, was officer in charge at Grande Prairie, Alberta for many years with the Department of Transport. He wrote this account in Gabriola , B.C. 1992 where he retired to in 1978.

I arrived in Teslin in the early spring of 1943. There was no snow at Whitehorse or Teslin except back in the bush and up on the mountains. Construction was under way on the runway as well as RCAF barracks (where we stayed later) and other buildings. The terminal building and powerhouse were already in place, as well as the transmitter sites. We bunked below the aeradio office and ate with the Bennet and White crew who were the general contractors, until the RCAF barracks was completed. They sure put up tremendous meals at the camp. We worked for them at odd jobs during our spare time.

Jack Proctor was our Officer in Charge of the radio range crew. He was very well liked. The radio operators were Pete Clute, Bob Collomby, Tom Lee, Keith Morton, Geo Galinas and myself.

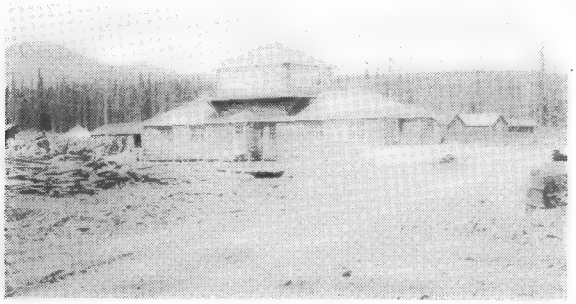
When at Teslin, we got up to Whitehorse once in a while. There were also a couple of small stores down at the village on the shore of Teslin Lake. One was the Nisutlin Trading Post, - R. McCleery's, - raw fur dealer, post office and Radio CY6C and amateur radio station VE5AJJ. The McCleery's used to invite the airport lads for Sunday supper on a rotation basis. This was a highlight when it was your turn. Of course their two teenage daughters had something to do with that.

We did not do much swimming in the lake as it was a bit cold. In the winter we skied in the hills near the airport and went boating up the Nisutlin River. This was also a good place for fishing in the spring and summer.

The RCAF had weekly movies, which were attended by all in the area including civilians from the village. I was impressed by the local natives. They were nice people.

I always liked Teslin, it was my first posting and exciting for me.

I left Teslin for Watson Lake in July, 1944, then on to Grande Prairie in September of the same year. From there I went to Fort Nelson in November 1945 until 1948. Then I was posted to Fort St. John until November, 1954, and finally back to Grande Prairie in 1954 until retirement in May, 1978.



Terminal building Teslin Yukon 1943

Teslin Radio Range Staff 1943
rear: Jack Proctor "JP" OIC, Bob Collomby "RA",
Keith Morton "MK"
front: Tommy Lee "TA", Pete Clute "CD", Charlie Stredulinsky "CS".
Photo taken by radio operator George Galinas

Mrs. R. McCleery and daughters, 1943

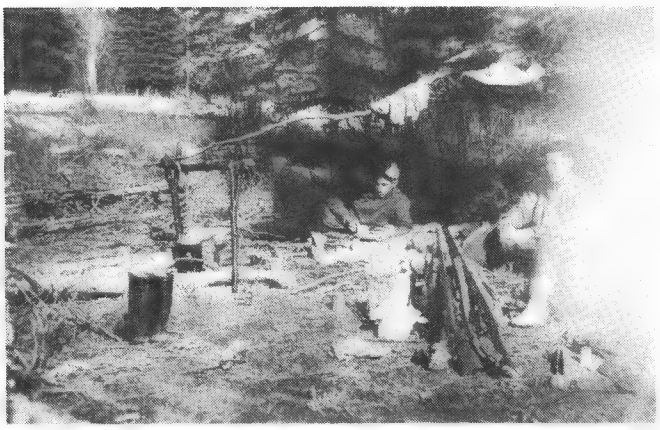
Teslin D.O.T. and RCAF staff enjoying
winter evening of recreation, 1943

LIFE IN THE YUKON IN 1946

Donald A. Moore - radio operator

The following was written by Don Moore to mark the 50th anniversary of the building of the Alcan Military Highway. In a somewhat different form this story appeared in the Wiarton Echo in 1946, and in the Iroquois Chieftain in 1986.

It was the last day of April, 1946, in the Yukon. There was still a considerable amount of snow remaining on the ground, mostly in the bush where the spring sun had not yet reached. The hunting party consisted of Gordon Toole, a weather observer at the Snag Airport, and two radio operators from the same airport staff, Max Bonitz and Don Moore. All three were civilians, employed by the federal Department of Transport at the airport, which was operated by the Royal Canadian Air Force. Snag was the last of a string of emergency airports before the Alaska border. The strip was situated some 16 miles east of the Highway itself, but connected by a gravel access road.



Gordon Toole and Don Moore relax during bear hunt, 1946

Gordon Toole was an experienced trapper and hunter. It was more than a hobby with him, and whenever he was not on duty with the weather service, he was travelling his trap line. But this trip was more pleasure than business, and his companions were two novices at this game, along for a good time.

The group had trudged a half-day's walk south of the Snag airstrip, roughly following the White River and a trail that had been blazed by participants in the Klondike gold rush. The party carried two .303 rifles and a .22, the former supplied by the RCAF. The smaller bore .22 rifle was the property of Gordon Toole. The rifles were carried more for sporting purposes than for any serious hunting.

In any case the first day did not turn up any game except for some ducks and a lone Canada goose, all of which successfully evaded the hunters. Camp for the night was made within a stand of pine where a small clearing had allowed the snow to melt completely away. A lean-to shelter was made with pine boughs. More boughs served as beds and the party spent a very comfortable night. Although no sign of bears had been seen, as a precaution the supplies were hung in tree branches, well off the ground. Two days and two nights were spent at this spot and a relatively short distance from the camp was explored. There was no indication of large game of any sort in the area, and on the third day the two greenhorns decided to take it easy, stay in camp, and let the expert scour the countryside on his own.

As it happened, Gordon Toole was successful that day and surprised a mother grizzly with two year-old cubs. Cubs normally stay with the mother until the second season, when they strike out on their own, Gordon wounded two of the animals, the mother and one of the cubs. They went rather out of their minds and crashed off through the undergrowth. In itself this was rather a lucky turn of events, for a wounded grizzly is a dangerous animal and could very well have turned to attack its tormentor.

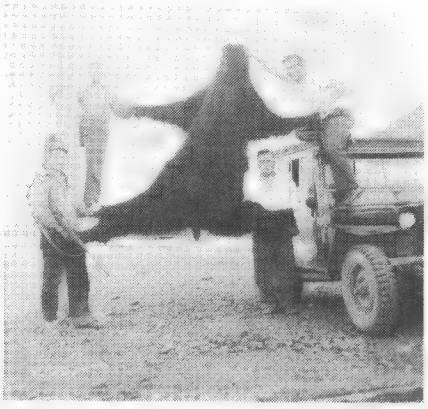
In any event Gordon now took another risk. Grizzlies are also known to circle back and attack from the rear in such situations as this. But Gordon followed the bears through the bush, hoping for another chance to confront them and perhaps bag a bear or two as trophies. The wounded cub was in the lead, and the mother probably had only thoughts of staying close to her cubs, rather than worrying about her pursuer. Luckily the bears did ignore their tormentor and made a bee-line through the bush, coming straight to the camp.

While all this was going on the other two hunters were peacefully having a nap in the pleasant spring sunshine. And as it would happen, the wounded cub ran through the clearing, and without intending to do so, on its way took a number of gouges out of one of the sleepers, Don Moore. He did not at first realize what had hit him, waking only to find the mother bear and one cub halted on the south side of the camp, and the other cub on the north side and about to return to its mother across the campsite. Needless to say both Max and Don took themselves out of the way, and the wounded cub returned to its mother's side without hindrance. Don, in the meantime found himself covered with blood, and with a torn shirt.

Max was fully awake in an instant, and without hesitation emptied a clip of .303 bullets in the direction of the bears. It is rather difficult to say if any of the shots found their mark. Also, the clip had been loaded with tracer shells, left there from the previous evening of night shooting.

While Max was busy firing the first salvo, Don reloaded a clip with normal ammunition, and with these bullets Max took steadier aim and dispatched the three animals. The mother bear and one cub were easy targets as they stayed relatively motionless at the edge of the clearing. The wounded cub was another matter as it continued to race in circles, trying to escape the pain of the bullet that was lodged in its shoulder. And during this space of time, Gordon continued through the bush toward the camp and was lucky not to have caught any of the bullets that were being thrown his way but intended for the bears. By the time that Gordon reached the campsite all of the bears lay dead. It was never determined exactly how many bullets had actually hit them.

Gordon Toole with the three dead grizzlies



Showing off the larger grizzly's hide

Under the direction of Gordon Toole the bears were skinned and a portion of the meat readied for the trip back to Snag. The bear meat proved to be a welcome addition to, and a pleasant change from the everyday military menu. Subsequently, Gordon completed the tanning process, leaving each participant with a souvenir rug.

Don Moore's wounds, a deep gash on the left shoulder and a minor slash on his nose, were treated by the RCAF medic with sulfa drugs, and there were no ill effects.

Also subsequently to these events the grapevine, via the radiotelegraph circuits along the Northwest Staging Route, carried various accounts of what had happened. One story that was spread widely had it that Don, upon being attacked, swiftly dispatched the bear with a few well-aimed blows from an axe. Although it is certain that none of the participants felt any fright during the skirmish, it can also be safety said that none were brave enough to tackle a grizzly with nothing but a camp axe.

Don Moore visited us in 1992 and says that his scars are all but disappeared. Norman Larson

COLD SPELL AT SNAG, YUKON TERRITORY 1947

Max Bonitz. radio operator

This account was used by personnel of Radio Station CJCA Edmonton, Alberta, on February 7, 1947, for a recording which was later broadcast by the Canadian Broadcasting Corporation.

"This is Hal Yerxa of CJCA in Edmonton speaking to you from Snag in the Yukon, a tiny outpost, hundreds of miles from civilization which has the honour of being the coldest spot on the North American continent!

Snag's record breaking cold wave of from 78 to 83 degrees (F) below zero has subsided and temperatures here today are a mere 24 below. The barracks are warm and comfortable and the men are in excellent spirits.

Snag City, as the Indians call it, consists of 20 men, 10 of them attached to the RCAF and 10 to the Department of Transport Meteorological and Radio Office. There are two 20-room barracks, a powerhouse, garage and radio range station. These are Snag's buildings.

When you fly into this lonely spot almost 300 miles from Whitehorse, it is hard to believe that men are living in comfort in the heart of such mountainous and rugged terrain. But our welcome was warm and we felt immediately at home. The boys were glad to see us. Except for a truck a few days ago, we were the first outsiders to come into Snag since January 23. Normally it is a one-day trip by air from Edmonton, if you make connections and the weather is good. We left Edmonton last Tuesday morning and it was only through the splendid co-operation of the Royal Canadian Air Force that we arrived in Snag yesterday.

We were met by some of the men of the station, wearing friendly grins and some of them growing beards. Their first question was "Did the mail come with you?".

We were hustled inside, treated to a splendid supper and then the questions started. Gordon Toole, chief meteorological officer told us that the first record was set on January 30, when the temperature hit 78.7 degrees below zero. This was a new North American record. The next day it stayed around 72 below, but on Sunday last week, Snag broke its own record when the temperature hit an unofficial 82.6 degrees below zero. To make sure of the facts they only called it 81 below. The alcohol thermometer had readings only to 80 below and the other degrees had to be estimated. They knew it was several degrees past the 80, so it was easy to estimate an official 81 below. The next day on Monday it plunged to 83 below zero. But the official tabulation was not changed. It is interesting to note that pure alcohol used in the thermometer will not freeze until temperatures of minus 149 degrees.

We talked about the strange things that happen in cold weather, noises being heard clearly for miles. Harold Bucknell of Foam Lake, Saskatchewan, was the radio operator at Snag the night of the 83-below temperature and told of an American airliner passing over the station at 10,000 feet. He said that the noise of the motors was still

clear and distinct when the plane was 20 miles away. Max Bonitz, of MacRorie Saskatchewan, officer in charge of radio at Snag, told how the dogs from the Indian village four miles away, sounded as though they were right outside the buildings of his barracks. Here is Bill Wadman of Keewatin, Ontario to tell you how water froze before it hit the ground.

BILL: Well, it was hard to believe but it actually happened. A couple of the boys were with me, there was Jerry Blackmeyer, who came from Penticton, B.C. and Wilf Blezzard from Vancouver, along with Edward Willoughby from Somerset, England. Incidentally Ed Willoughby, the caretaker, was out plenty in the cold, dumping ashes and getting wood. Anyway, we stood at the door and I threw a cup of water into the air. It was 84 below and believe it or not, the smaller drops of water hit the ground in the form of hailstones. We couldn't believe our eyes so we tried it again and the same thing happened, isn't that right boys?

REST OF FELLOWS: "Yes that's true, etc. etc.

HAL: Speaking of water, some of the boys this morning showed us an astounding thing. We drove down to the Indian village where there is a natural spring which supplies drinking water down there. It is a hole about a foot deep, always filled with clear ice cold water. During the 83 below temperatures, that water never did freeze and the ground for six feet around was not affected by frost. We also saw a little creek near the camp which for some unexplained reason has not frozen over. It is only four inches deep, and the water is slow moving. These are but two of the strange things you see at Snag in the Yukon. Our trip to these spots was arranged by Cleve McLaren and Norman Strand both of Victoria, who own a modern passenger car, the only vehicle of its kind within hundreds of square miles in the mountainous and wild country. Another passenger was Gordon Macleod of Edmonton, who works in the power house. Here is Norman Strand to tell you something of driving at 70 below.

NORMAN: We were lucky to get back. We had been out to a trap line and when we started it had only been 40 below. However the temperature zoomed to 70 below and it was an experience. With me at the time was Gordon Smith of Edmonton. I found it very hard to push the gearshift into second gear and when I did get it into high it kept slipping out. We had to completely cover the hood of the car with blankets and even with heavy going the engine never did get hot. Our concern was that it might get cold and stop. If that had happened some body else might be telling this.

HAL: Aircraftsman 2, John Lowe of Natal, B.C. told us of the strangeness of vapor trails and hissing breath, as he walked out to the runway. As John told me, "I walked outside and heard a sort of hissing sound every time I breathed. I couldn't figure it out and came back to tell the boys. When I turned around I was more surprised to see what looked like a long trail of fog hanging in the air over the path I had come. Then it hit me, and I knew that strange hiss was the freezing of my breath as it touched the air and the fog was my vapor trail. Speaking of vapor trails, we found humour at Snag and the boys were ready for us with this cooked-up story. Flying Officer Dave Cantera, of Edmonton, Officer Commanding the RCAF station at Snag, collaborated on it with Nick Stephen of Edmonton and Gordon Campbell of Weston, Ontario. I'm going to ask Flying Officer Cantera to retell the story.

DAVE: Okay. Hal, this actually happened in the 81-below-zero weather. We were staying close to barracks, enjoying ourselves, playing cards, pool, writing letters and generally talking, when one of the boys thought it might be a good time to hunt a moose, as they wouldn't be moving very fast in the cold and might be easily spotted by their vapor trails. He put on skis, took his rifle and started out. Sure enough he spotted this moose's vapor trail which was frozen in the air. He climbed up on the vapor trail and started skiing toward the moose with his rifle ready for the kill. He was so engrossed in his hunt that he didn't know the moose had spotted him coming. This moose was pretty smart and just as our hunter thought he was going to bring back the bacon, the moose stopped breathing, leaving quite a break in the vapor trail, and the would-be hunter fell through the hole and broke his arm. We had quite a job getting him back to barracks.

HAL: Thanks Dave, now I know how the tall tales of the Yukon originate. Speaking of tall tales, the boys told us how many newspapers had wired and requested information regarding a rumoured food shortage at Snag during the cold. We checked on that and found the men had plenty to eat and it was good food. They like their cook Les Brown of Edmonton and his assistant Percy McNaughton, also of Edmonton, having sampled their splendid cooking, we are wholly in agreement.

I think right about here, Gordon Toole the meteorologist, who runs a trap line and has a dog team, is going to feed his dogs, perhaps we can let you hear the few huskies from the Yukon. These dogs incidentally stayed outside all during the bitter cold and suffered no ill effects. (howling dog sounds for one minute maximum).

There were other animals out in the cold wave too. We got a mighty interesting story from Bill Blair, a trapper and trader at the Indian village, who has been in the Yukon most of his life. The last time he saw the outside world was when he visited Edmonton in 1912. Bill Blair said thousands of rabbits died last week in the cold, he said the number was too great to estimate. Other thin animals also died he said, like fox and deer, wolf and coyote. Fat animals survived. Bill Blair has two riding horses, so far as he knows the only horses in this area of the Yukon. They were not troubled by the low temperatures. It was Bill Blair who told us how Snag came to get its name. The white trapper was glad to talk as we sat in his log trading post in the light of a mantle lamp. His mother-in-law, an old Indian woman, sat quietly doing beadwork on moccasins. It was warm and quiet except for the howling of a wolf or a dog and the spell of the Yukon was in the room. This spot he said was the site of Snag city, built by the men of the Shushoni gold rush in the 1890s. Over 200 cabins were erected and all that remains are rotting foundations, the walls have long since crumbled. These gold hunters, he said, came in poling boats up what is now called the Beaver or Snag River. The name Snag came into being because there were so many logs and

trees in the water and the boats were always being caught on snags.

The men who moiled for gold wintered in this spot before trekking on to Alaska, and as it grew, the Indians, who are a branch of the Athabasca tribe, came to call it Snag City, a Haven in the Terrible Yukon.

The gold-rush days are gone, the cabins rotted. There are only a handful of whitemen in hundreds of square miles and yet their presence was felt as this morning we looked at the old cabin foundations with trees and vegetation growing wild.

While we talked last night to trapper Blair, a burst of good humour filled the log hut as he told us his priceless recipe for sourdough hotcakes. Bill is at our microphone now in the Snag barracks.

Note:- From here on the story is straight ad lib. So ended the broadcast. Who knows how the hotcakes turned out.

Bill Wadman, reading at the Snag thermometer screen some days after the low record was set, 1947.

Snag D.O.T. Barracks a few days after cold record.
Rear: Max Bonitz OIC Radio, Gordon Toole OIC Met, Wilf Blezzard, Bill Wadman, Jerry Blackmeyer, Ned Boss, John Lowe, Gordon Macleod, Dave Canterra. Front: Ed Willoughby, Bill Blair, Gerry Crouch, Gordon Smith, Gordon Campbell, Percy MacNaughton, A. "Pop" Brown, Harry Bucknell

NORTHWEST STAGING ROUTE AND AVIATION RADIO (AVRAD)

Max Bonitz

Max Bonitz was a radio operator and later officer in charge at Snag. Max wrote this account of his experiences in 1992.

The recollection of a five-year period of one's life, which took place 49 years ago must at very best be rather spotty, unless one has kept up with entries in a daily journal or a log book of one kind or another.

What follows here then are a few memory enhanced accounts by the writer, which occurred during five years spent on the Northwest Staging Route.

With the completion of the Alaska Highway in 1942, the completion of airports and emergency landing strips between Edmonton and Whitehorse was well under way in preparation for a massive movement of aircraft from the U.S. to Alaska for eventual delivery to Russia.

My beginnings were with the Department of Transport (D.O.T.). In order to staff the dozen or so airports and their associated communications and weather reporting facilities, the D.O.T. undertook a massive recruiting and training program. The training consisted of sending and receiving traffic by Morse code as well as attendance at the Edmonton airport weather office to become familiar with observing and preparing weather reports. When training was completed and as the demand for operators arose, when a station became operational we were issued with heavy winter garments and footwear and were on our way into the north country, usually by RCAF DC3 aircraft, to places which were unfamiliar to most of us.

I arrived in Edmonton in early January, 1943, with my colleague and co-worker Alan Matheson from Vancouver, where we had both been employed at the Coastal Marine Station "VAI". Arriving as we did by a very late train into a fresh two feet of snow with the temperature at about minus 30 F, didn't really impress us and made us wonder if it was really going to be a happy New Year!

Well, things did improve and our training proceeded under the watchful eyes of "Dusty" Weaver and Oliver Howey, resulting in Alan being shipped off to Smith River in mid-summer. I was sent to Grande Prairie in early September where I remained until October, 1944, when I was transferred to Aishihik, Yukon Territory, where I learned what an isolated station was really like and had George Goodwin as my officer in charge. In May of 1945 I transferred to Snag, Yukon Territory, where I spent the next three years until I left in July, 1948. I left the Yukon behind and was transferred to Yellowknife where I spent the next eight years as an operator and eventually as officer in charge.

My Grande Prairie and Aishihik experiences note being transferred to Grande Prairie was a real plum which I had not really expected. It was in no way isolated, being just three miles west of quite a large thriving town with bus service provided by the air force. We were housed in a very

comfortable barracks block, which was right near our work place along with the houses in which the married operator and meteorological people were housed. Our meals were provided by the air force where we ate in the officers' mess. It was a good posting because we were able to further hone the skills we had previously received in Edmonton training sessions. It was here that we became aware of the massive aircraft movement of many types, which were on their way to Alaska, many of which landed and overnighted before proceeding on their way north. At that time the Department of Transport was also handling traffic involving the operations by the daily commercial flights of Canadian Pacific Airlines from Edmonton to Whitehorse and out of Vancouver, using the twin-engined Lockheeds which many airlines were using at that time. We also had ample opportunity to get hands-on experience at the transmitter site and the radio range beacon site as both the Officer In Charge, Alfred "Chil" Flick and senior operator Alf Dawson were only too glad to give us the benefit of their experiences and knowledge. Before leaving for the "real north" the D.O.T. initiated its own messing facility in our barracks and we were royally fed by a chef who was a native of France with extensive experience in cooking, and a volatile "short-fuse" temper to match whenever his feathers got ruffled! His name was Jack De Denis.

Aishihik, after the comparatively luxurious life of Grande Prairie, was an abrupt change of pace. About 100 miles from the nearest town (Whitehorse) we were housed in a comfortable enough barracks which also contained the air force kitchen and mess hall for the air force members and smaller room adjacent to the forces mess which served as mess hall for the transport people. There was little contact with the outside world and life was rather hum drum. As it was winter during most of my stay there, a ping pong table in the administration building was really our only active form of recreation. The air force cooks were not very imaginative, which left a good deal to be desired. An unusual aspect of Aishihik was the herd of "wild" horses which roamed at will and were ruled by a mangy looking sorrel stallion. The local Indians had broken a couple of the horses which we would see them riding once in a while.

Snag, Yukon Territory - 'WHERE THE UNUSUAL WAS USUAL' - was the last air-radio station in the chain of stations located on Canadian soil, the next one in line was Northway, Alaska. Snag was located 15 to 20 miles from the Alaska boundary and 16 miles from the Alaska Highway. It was almost a carbon copy of the other intermediate stations as far as housing and buildings go and was equipped with much the same equipment and staff. We didn't have much contact with the outer world either, with the exception of occasional supply trucks and rarely a private aircraft after the war was over. The most important link was the weekly or twice-weekly service flight made by an RCAF Beech 18, which was also sometimes called a C45, or sometimes an Expeditor. It took care of incoming and outgoing mail, took personnel out on annual leave and eventually brought them back for further duty. It usually had some perishables on board which had been ordered by the cooks, and of course brought us the all important movie film which was our main source of entertainment. We once had a visit from our counterparts in Northway, a visit which we repaid at a later date which made for a nice change in the routines. After the war we would often see DC3 aircraft on their way to Alaska towing two and sometime three gliders, something we had never seen during the war years. On one occasion we received a flight plan of an aircraft coming out of Alaska and going to Whitehorse with a proposed fueling stop at Northway. After a lengthy silence we wondered as to its whereabouts and finally decided to investigate and initiated a call, which was answered by the aircraft. His situation was desperate, his fuel was running dangerously low and he would see us in 10 minutes if his fuel didn't run out. His calculations were extremely correct, and he soon appeared in a few minutes approaching from the north. He landed and taxied and was about to turn into the parking area near our administration building when his engine sputtered and stopped. The pilot got out and introduced himself as a Flt. Lt. Jaworski, which we didn't question as he was in uniform. He was flying a single engine Norseman with an RCAF registration and markings which was a puzzle we never did solve. He related how he had encountered adverse weather, ruling out his intended landing at Northway, which had forced him to press on to Snag. After some refreshment and refueling he took off for Whitehorse and another 'unusual' situation was written off as 'routine'.

The standard summary of any posting site was barracks, heat, water, food and recreation. Housing consisted of two barrack blocks, one housed the RCAF men and the other housed the transport personnel and also contained the all-important kitchen and mess halls. Heating was delivered by a large wood-fired furnace and motor-driven fan through metal ducts running the full length of the barracks. Wood was provided during summer months by contractors to the air force and was still a bit on the green side when we began to use it late in the fall. We found that for best results it had to be split. Splitting four-foot logs was a little too strenuous for Ed Willoughby, our caretaker, an older man and a native of Somerset. We found that the ideal time to split logs was soon as they were delivered into the wood bin when the logs were still frozen. Anyone who wanted some exercise or had some frustrations to work out was free to help in this important chore. Water was supplied by a nearby pump house and well, through underground water mains which occasionally froze up. If noticed in time, the powerhouse crew was usually able to get the water going by feeding a high current through the mains from a sled-mounted pole transformer. When we experienced the "deep freeze" of February, 1947, the mains really froze solid and we were without water for quite a while. Being deprived of hot water and having only cold water in a 45 gallon drum, we decided to contrive a method of heating water. We didn't have an immersable heater. We did have a roll of stranded wire, apparently left over from the earlier construction days which had two strands of steel wire among the strands. After some experimentation and several "burnouts" we ended up with 15 to 18 feet of single steel wire which we wound on an 18-inch length of ceramic sewer tile which was immersed in a 45 gallon barrel of water, and plugged the leads from the coil end into a power outlet. With a little luck the wire coil could soon develop a hard layer of some kind which tended to prevent any early burnout. It did a terrific job of heating 45 gallons of cold

water. Although the system worked it was of course an accident waiting to happen! Unfortunately, the victim of the accident was Harry Bucknell, one of our radio operators and an old classmate of mine from radio school days in Vancouver. He unfortunately had made physical contact with the water barrel and a tap on a nearby sink and sustained a severe electrical shock. We consulted with the Medic on staff and decided it would be wise to get Harry to Whitehorse for medical attention. After a few days stay in Whitehorse he returned to duty without any further incident. We were very fortunate to have a good run of cooks at Snag. At first we had regular air force cooks and a bit later some civilian cooks on contract to the air force. They surely helped to make our lives as enjoyable as possible and did the most with the basic rations which were supplied to them by the air force.

The air force also kept us supplied with a good assortment of sporting equipment. Skates and hockey equipment for winter time and balls, bats, mitts and gloves for softball in summertime. We developed a good hockey team and also a good ball team. Our ball team was challenged on several occasions by the army road maintenance crew at mile 1206. On one occasion the air force at Aishihik invited our hockey team to a game. We were transported there by the same Beech 18 which serviced both stations. We crowded 11 men and equipment into the aircraft without any mishaps. During the first winter at Snag a couple of the air force transport drivers built a propeller driven snowmobile. The engine used was, believe it or not, a Model T Ford engine, just where they had found it I never did find out. It functioned quite well particularly on the hard packed runway and was capable of towing two or three people on skis. Some of the transport people were interested in photo work and we converted one of our barrack rooms into a very good dark room. The officer in charge of the meteorological office had a very unique recreation. His name was Gordon Toole, a first class outdoorsman. He spent every free moment in the outdoors, hunting or just exploring and possibly had the best knowledge of the area around Snag. He had a five-dog team with which he cruised the bush in wintertime, He also established a trap line from which he harvested a goodly assortment of furs.

Another significant chapter in my memory book of Snag involved a truck, a fatality and a new Jeep. When I first came to Snag I discovered it had a half-ton truck as most stations did but none but the officer in charge ever drove it. After some time he left on transfer and I decided that everyone should be able to drive, and began to let those who had never driven have a chance to do so. This was very well accepted and soon everyone could at least get in and get from point A to point B. But as things turned out it may well be that a lack of driving experience was the cause of the fatality which occurred some time later. I had been on annual leave and on my return dropped by the Edmonton Regional Office where they informed me that Bill Jewell, one of our operators had been killed in a vehicle accident. Some time after I went on leave Bill Jewell and Stu Ewing, one of the other operators, decided to drive out to the highway with the station truck. Our access road was quite driveable but had a few surprises here and there. About a mile from the station where the accident occurred there was a sharp little hill with an immediate steep left hand turn. It had rained during the day causing traction to be something less than perfect and the shoulders were rather steep, and the RCMP felt that the truck went out of control at some point beyond the top of the hill. Bill the driver panicked and attempted to open the door, was unable to escape as the vehicle rolled and got jammed between the partially open door and the door frame, resulting in his instant death.

When I returned from annual leave the truck had been replaced by a Jeep. It was a standard military 4-wheel drive Jeep with the addition of a complete cab of wooden frame and sheet metal construction, with doors on both driver and passenger sides. It served us well and only failed me once on a trip to the range site. The road was soft and wet due to spring thaws and being uphill I switched to 4-wheel drive. But shortly the vehicle bogged down, with all four-wheels spinning, and the Jeep solidly on the ground between two deep ruts.

Only twice was the welfare of the Jeep in jeopardy. The first time was on Christmas Day. All the radio and meteorological people had been invited to spend the day and have Christmas dinner with a couple who operated a motel-stopping place a short distance down the highway. Everyone left, some in the Jeep and the rest in a Crown Assets sedan belonging to Norman Strand - another of our operators. Late in the evening I had a phone call from Gordon Campbell who said they were all coming back in Norman's car because the Jeep was U/S (unserviceable). I wasn't unduly perturbed nor was I prepared for the tale of woe I was about to hear. The temperature had been about minus 30F and the Jeep refused to start. They had put a fire pot under the oil pan, the collected oil on the bottom of the engine had caught fire and was merrily blazing when someone thought to check on the "heating process". This, incidentally was a very normal way to get cold balky engines to run in the Yukon. The bottom line was that everything on the Jeep motor which was either rubber, neoprene, fabric or combination of the foregoing was absolutely destroyed!

Our first concern was how to get the Jeep back to the airport. We got in touch with the road crew and requested a tow the next time they drove our way. They complied and we soon had the Jeep back. We had also ordered replacements through the air force and we had only one problem remaining, where to work on the Jeep? The air force had a good six-bay garage built the previous summer, but it had no heat, as the boiler and heat radiators had been wrecked due to the night fireman letting the fire go out in early winter. We finally talked the commanding officer into in letting us work in the power house. With permission granted it didn't take too many days to do the repairs and we were once again mobile. We were surprised one day later by an unannounced inspection party from Whitehorse, who raised quite a fuss because our Jeep was found in the power house. We pointed out to the officer in charge of inspection that we would store the Jeep in the garage if and when they restored the heating plant in the garage, impressed on him that we must at all times have a serviceable vehicle to ensure unbroken operation of the navigational facilities at Snag, and if he didn't like it he should take the matter up

with our regional office in Edmonton. We heard nothing further on the matter. Next summer we had a visit from a technician by the name of Harry Allan who we knew very well from the earlier Edmonton days, and noting the large circular area on the hood of the Jeep which clearly looked like a burned spot he commented: "It must have got pretty hot" to which I meekly agreed, not offering any further explanation, nor did he ask for any. I might add that while our Jeep was being fixed we made our inspection trips on a small Farmall service tractor which the air force had, and while it was better than walking it was a lot colder! The second time our Jeep was in jeopardy occurred due to a shipment of beer which arrived by supply truck. Beer was not a part of our regular canteen supplies and arrived now and then on a supply truck. When it did arrive (70 dozen bottles in a wooden barrel) It was the signal for an immediate party that night. These parties had a nasty habit of getting a bit out of hand and most of us had the good sense to steer clear of them, in fact several of the air force personnel would seek sanctuary for the night in our barracks when a party was in the making. The next morning we sensed from snatches of conversation that some thing out of the ordinary had taken place. It appeared to center around our Jeep, so we went to take a look, We could hardly believe our eyes. A couple of the air force boys were putting the spare wheel in place of a badly twisted one on the Jeep, part of the windshield was smashed, the top of the roof had been damaged. Looking underneath we found two shock absorbers broken loose. There wasn't much sense in complaining to the current commanding officer as he was in the process of being posted and in any case he was one of the wild party leaders. We simply told the transport mechanics if they could restore the Jeep to normal and repair the damage done we would forget the incident. How they accomplished this we didn't want to know and they did a relatively good job.

Early in February, 1946, another disaster struck Snag. At about 3 o'clock in the morning I was awakened by a pounding on my room door and the news "The administration building is on fire!". I struggled into my clothes and as quickly as possible, got my foot gear on and ran out to see what was going on, while putting on my parka and cap. Some of the air force were busy unrolling a hose from their nearby barracks and saw smoke gushing from the lower part of the building. Not seeing any visible fire up in the tower section I scaled a fixed ladder on the outer wall, and not seeing any visible fire in the tower or the stair well, I opened the tower door leading to the catwalk outside the tower, and with the door open a puff of smoke came up the stairwell. This convinced me that we were in big trouble! It also told me that I should not hang around too long! I quickly salvaged one receiver which was not rack mounted and had its own cabinet, and put it out on the catwalk and yelled at someone down below to come up and take it down. I then ducked back in again and lifted the station files and some equipment and other manuals from the filing cabinet. As I left the tower I noticed a faint red glow in the stairwell and lost no time in getting out and closing the door. After handing the files and manual to someone I climbed down the ladder and went to where I had seen them rolling out the water hose. As I didn't see any water, I was told that the feed pipe for the hose, located in the barracks attic was frozen, so there was nothing to do but stand by and watch our control point being consumed by the fire - and take a few pictures. After a couple of hours the building was pretty well burned down and it was decision time once again. With our control point destroyed and no receivers with which to monitor the low frequency of the radio range, we were deaf and dumb. We loaded the salvaged receiver and drove to the range hill. As far as we could tell everything seemed to be in operation. We drove back down the hill and attempted to make contact with anyone who might hear us. The transmitters could be keyed, but the noise factor in the transmitter building was horrendous. We finally did contact Aishihik and gave them the news of our disaster. They were quite aware that something had gone wrong because they had not received any hourly weather reports for several hours, nor did they hear our normal hourly weather broadcasts via the range transmitter. The news was relayed to Edmonton and a few days later Don MacKenzie and one of our junior engineers arrived with replacement equipment and after some discussion and deliberation the new control point was established in a small mess hall, with sufficient room left for the new meteorological office.

They say things never come by halves, and I was sure of it when during the re-installation of our new control point, the young engineer (whose name has completely left my memory) told me that he had my first Barrier exam papers with him, and when I had a spare moment would I please sit down and write the exam. Well, I finally found some time and holed up in my room and wrote the exam (which incidentally, I also passed).

About two miles north of the Snag Airport there was Beaver Creek, sometimes called Snag Creek. A fairly typical Yukon creek running quietly down to the White River to the east. Along its banks at a discreet distance from each other lived the only other white people in that area. One cabin was the home of Paul Neiman, his native wife and a few children. The other cabin was the home of Bill Blair and his partner (whose name has also left my computer) and whom I never really knew very well as he died the first summer I was in Snag. They were traders who traded with the local natives and were fairly long time residents of Snag. Near the Blair cabin there was a bridge across the Beaver. Not a very well built bridge, I never did find out if it was part of the original development of the Snag Airport or not. In any case, it was there, and to get to the radio range site one had to cross it -v-e-r-y- -s-l-o-w-l-y-. About a year after I had arrived we one day noted a rising of the creek's water and lots of deadfall tree branches and general debris drifting by, some beginning to lodge on the bridge support piles. Bill warned us that this happened every now and again and that if the pile up of deadfall got big enough there was a good chance we would lose the bridge. Well, once again it was decision time. It so happened that there was a large dual-wheel truck with stake body which had been parked south of the Beaver crossing since construction days, and was there when I first arrived in Snag. No one seemed to claim it, and yet there was fuel in the tank and it ran nicely, was driveable and was made by Studebaker. We decided that in case of a bridge outage it might be wise to have some form of transportation north of

the bridge so we moved it over. Later in the evening, although it appeared the creek had crested, there was a tremendous pileup of branches and debris against the bridge piles and the bridge was moving quite noticeably under the strain. I thought it best to put in the night on the north side of the bridge just in case. Providing myself with a few rations, a jug of water, some blankets and a rifle, I crossed the bridge and drove up to the range site in the Studebaker truck and spent a most uncomfortable night on the hard floor. We had made arrangements to meet at the bridge after breakfast and on getting down there in the morning we discovered the water level much lower than the night before but the northern most bridge piles had been swept away, the deck stringers had cracked and the whole bridge deck from the center of the bridge to the north shore was hanging in a gentle arc almost touching the water at its lowest point. Crossing on foot was quite possible but it was unusable for vehicles. Servicing the range site involved driving down to the south bank, walking across the old bridge and going up and back down the hill with the old truck. For once we had done something right! In late winter construction of a new bridge was started and was ready for service in late spring.

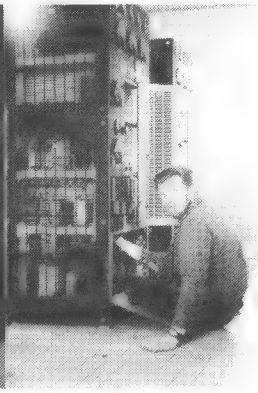
There are a number of other items of interest which should be mentioned. One, in particular, was the arrival of the first female resident in a previously all male camp which occurred when Don Strath brought his wife Gerry to Snag and took up residence in a building which had been the residence of the resident engineer in the early construction days. Gerry adapted quite easily and had a profound effect on the camp particularly on the daily language which prior to her arrival had a tendency to be a bit on the crude side!

The other two items involved an episode in which Gordon Toole, Don Moore, one of our radio operators and myself went up the White River hunting bear. The other was when we recorded the lowest temperature ever in North America, which created great interest and put Snag on the map. It established a record which still stands and which is still mentioned by Environment Canada, in the February 3 slot of its annual weather records calendar.

Because of great changes in the technology of flight, intermediate stations like Aishihik and Snag, which are no longer required, have been abandoned. The services which they provided are now served by one facility located at Burwash Landing on the shore of Kluane Lake. The events which filled the everyday lives of those men who served at the old sites on the Northwest Staging Route are now memories recalled by the handful of those who served and performed so faithfully in the rugged reality of isolation.

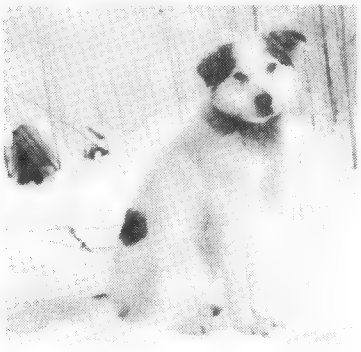
Snag Radio Range Transmitter Building 1947

Operators, Gordon Campbell & Don Strath, Servicing Range Transmitter



Operator, Orville Wakaluk cleaning relays

Snowmobile powered by Ford Model T engine 1945, built for fun!

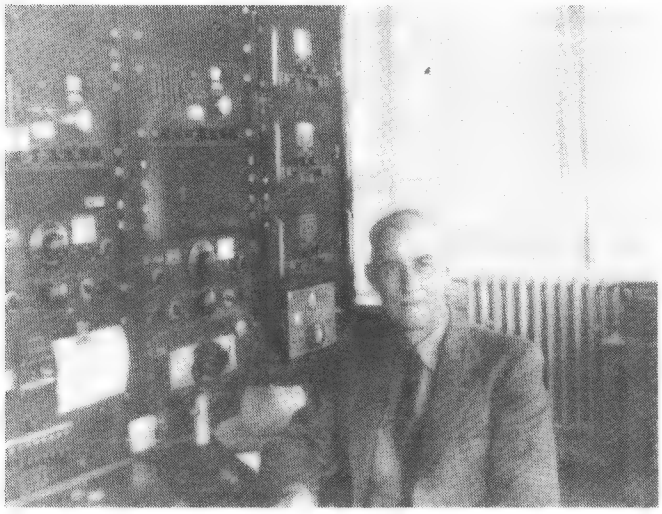


"King", Gord Toole's lead dog- 1947

Gordon Toole's dogteam, 1947

KENNETH C. (Lofty) HARRIS

This account is transcribed from a taped interview with Lofty Harris, done by Larry Nelson in 1988.



Technician Lofty Harris sitting at the Radio Range Position - Watson Lake, Yukon 1955

The Harris family lived in Nova Scotia where Lofty's father worked on ocean-going ships. One of his father's trips took him to Vancouver, B.C. where he obtained a land job. Immediately he sent for his wife and two sons, Lofty and his brother to join him in Vancouver. This was October, 1911. Lofty was 17 years old.

Lofty was crazy about railroading and used to hang around the Canadian Pacific Railway station and rail yards back in Nova Scotia. So in Vancouver, he immediately started to look for a job on the railway with the CPR and its ocean-going vessels.

As he knew the radio Morse code, he made friends with a Marconi radio operator on one of the CPR boats. Lofty had learned the code by hanging around the CPR telegraph station in Nova Scotia, and he along with a friend had put together their own amateur stations using batteries, spark-gap transmitters and crystal detector receivers with which they would communicate between their homes by code. Back home in Nova Scotia, Lofty was close enough to the U.S. Marine Wireless Station 'WCC" at Cape Cod, Mass., where he copied the news every night at 10 p.m. on Morse code which was sent at 20 words per minute to the ships at sea.

The CPR radio operator advised Lofty to see E.J. Hockin in Victoria, the superintendent of the new government radio service on the West Coast. Hockin was also an experienced telegraph operator from the CPR.

Lofty was immediately hired and spent the winter in Victoria. In the spring, he was sent up to the marine station at Bessie Point on the north end of the Queen Charlotte Islands. He was there for 14 months then sent over to Digby Island near Prince Rupert for nine months. From there he was sent to one of the most isolated radio stations on the West Coast, Triple Island, 35 miles northwest of the northern tip of Vancouver Island. He was there for one and a half years. Only two boat visits a year serviced this isolated spot, in June and December. Quite often these boats had an extremely hard time to land due to the open sea and poor weather conditions, sometimes laying-off landing for several weeks until conditions were favourable.

Triple Island was a very busy station, not only with ships at sea which could be worked at distances of 1,500 to 2,000 miles away, but also traffic with pulp mills and fish canneries up and down the coast. The radio equipment was of the spark gap type.

After spending the one and one-half years at Triple Island, about 1915, Lofty was sent to the Vancouver Marine station VAI at Point Grey, where he stayed for 2 years. Then he went on to Estevan Point on the west coast of Vancouver Island in 1917-18. There were three bachelor radio operators at this station. They covered the 24 hours a day on a rotating basis. Very little fishing could be enjoyed because of the poor weather and boating facilities, but there was an abundant amount of ducks and geese. It wasn't a matter of saying, I'll try to get some, it was how many shall I take?

Then he was sent back to Vancouver for two years before proceeding up to the new station at Bull Harbour off the northern tip of Vancouver Island. This station replaced Triple Island. This was a very good station with four operators. Lofty worked three days a week on shift, the balance of the time on clerical and maintenance of the radio equipment.

He was married in 1918 and lived eight or nine years at Bull Harbour. Then it was back to Vancouver in 1930 where his daughter could go to school. He stayed in the marine service until 1943 when the Department of Transport opened up an aviation district office in B.C. under the direction of a Mr. Butler. Lofty transferred to this new branch as an electronics technician.

During his time in the Marine Service, radio tubes came into use, first at Victoria and Vancouver in the mid 1920s. He felt this new type of equipment should have been installed at Bull Harbour earlier than 1927 because of the heavy traffic there. The first tube transmitters covered the 100-500 Kilohertz band using a Hartley circuit, which created great amounts of harmonics.

In looking back, Lofty said the spark days were really something. When the spark transmitter was keyed, the crackling and roar of the sparks could be heard outside of the radio building for hundreds of feet. There were several types of spark gap transmitters, including the quench gap and the rotary gap. Maintenance of the equipment was mainly keeping the spark gaps in shape and cleaned, along with the upkeep of batteries and power plants.

During the years with the Marine Service, Lofty was able to make four trips to the Orient as a radio operator. One trip on the Empress of Japan, the biggest and best ship of the CPR passenger line, and three trips on the Empress of Canada. It took these ships six weeks to make the round trip from Vancouver to Honolulu, Japan, Hong Kong and Manila.

Technicians, Lofty Harris and Earl Walker, with CF-CUE pilots Jack Batts and Tom Dennis, 1955.

Lofty would take his one month annual leave in March, and in the coming years leave in April, so that he would have a period of two months in all to relieve a radio operator on board ship during this period. This way, he had a nice vacation and the ship's radio operator got his leave as well. It worked out well for both parties.

After joining the aviation section of the D.O.T. in 1943, Lofty travelled extensively in the B.C. district installing radio equipment at many sites such as Prince George, Smithers, Terrace and others in the district. In the fall of 1953 he heard that Earl Walker in the Edmonton region was looking for a transfer to the Vancouver district, an exchange was made, Lofty Harris reported to Jeff Williamson in the fall of 1953 in Edmonton.

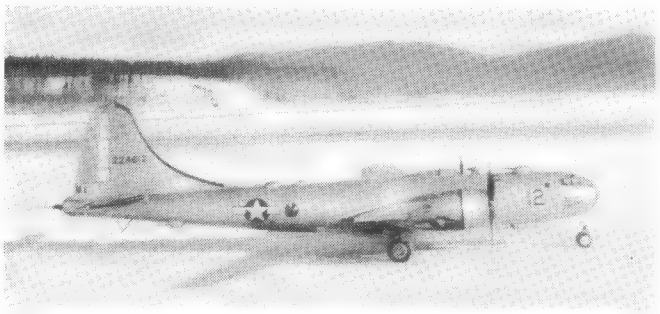
From 1953 until his retirement in 1960, Lofty was a travelling technician, mainly up and down the Northwest Staging Route, now called the Alaska Highway. He made one trip to Cambridge Bay, N.W.T. He especially liked the Yukon. At this period of time he installed VHF equipment in the 118-135 Megahertz range. This was the shift of aviation communications from the shortwave frequencies to the very high frequencies.

Lofty died in 1988 after a very active retirement spent in Edmonton, and the last few years with his daughter on Vancouver Island.

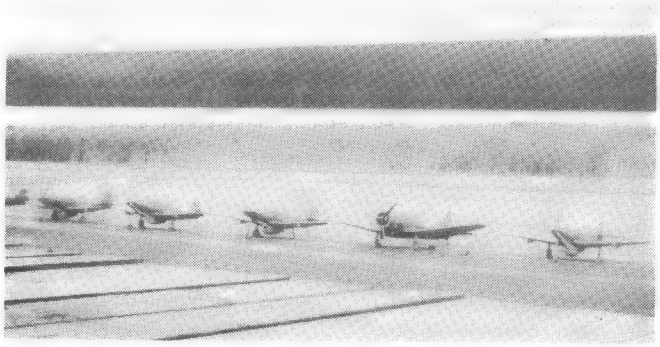
Note: It must be remembered that there are two types of code, the Morse Code as used by landline in the telegraph and railway systems which operates a sounder and the International Morse Code that is used in radio communications. Both have similarities but at the same time are quite different. Normally a radio operator is skilled in one, but very seldom does an operator master both codes. Many of the old time operators like Lofty Harris, Dusty Weaver and a few others, were exceptional people. They could take a message from a ship at sea in one code, turn around and send the same message across the country on the landlines using the other code. This was operating at its finest. Norm Larson

Watson Lake Airport Administration Building 1955

Single men's barracks, Watson Lake until 1951, then they were converted into D.O.T. married personnel quarters.



A B29 Superfortress Bomber on the ramp at Watson Lake - 1944



Planes lined up on Watson Lake tarmac, fighter aircraft destined for the Russian Eastern Front, 1944

"FLIGHT SERVICE STATION MANAGER"

This communique was sent to all flight service stations from Transport Canada and was received by the manager at the Lethbridge Station in February 1979 it is reproduced below in a similar style to the original typed document.

Flight Service Station Manager
Transport Canada , Box 790
Lethbridge, Alberta
T1J 3Z6

Name Changes
As of February 22, 1979, the titles Radio Operator and Aeradio Station were replaced by Flight Service Specialist and Flight Service Station respectively.

Some may look upon this retirement of the title Radio Operator, from the Air Administration, with a feeling of nostalgia. These employees are justifiably proud of the old "Certificate of Proficiency" awarded to them many years ago by the Radio Regulations Division. In recognition of those Specialists who were formerly holders of first or second class Certificates of Proficiency, it is considered appropriate at this time, to include some highlights on the history of the service.

THE EVOLUTION OF THE FLIGHT SERVICE STATION SYSTEM (Ref. TP1318)

Year	Event	History
1936	Departments of Marine: Railways and Canals: Civil Aviation Branch of DND - amalgamated into Dept. of Transport; Meteorological Service of the Dept. of Marine also absorbed into Transport	Wireless stations had been in service on both coasts for about 30 years and on the Lakes for about 25 years. Northern stations in service at Churchill, Nottingham Island, Cape Hope's Advance, Resolution Island, Inoucdjouac, Chesterfield Inlet, Coppermine.
	Trans Canada Airlines founded by C.D. Howe. Initial service Vancouver/Seattle, extended later to Winnipeg, Toronto, Montreal and Maritimes. D.O.T. commenced drive to build, operate, and staff a network of Adcock radio range stations.	Prior to this a few "loop" radio ranges were built by DND in the West for the pioneer air mail service by Western Canada Airways
1937	D.O.T. commenced operation of air/ground station at Shediac, N.B. to service Pan Am flying boats. Communications were by Morse, There was also a DF service.	Other stations in the International network were located at New York, Botwood, Nfld., and Foynes, Ireland.
1939	Up to 1939 an Aviation Radio Aids Division directed all the telecom activities of the Air Service Branch from Ottawa HQ.	District Offices were established at Winnipeg, Toronto and Moncton.
1941	Now 42 Radio Ranges in service. Operators transmit over range frequency and receive on 3102 and 6210 Khz.	District Office established at Edmonton to cope with activities on NW Staging Route.
1943	Flying boats phased out on North Atlantic. Ferry command and four engine commercial land planes take over. Ferry command HQ situated at Dorval.	Comm facilities at Botwood relocated to Gander. District Office established at Vancouver.
1945	At close of WWII D.O.T. had 86 radio ranges staffed by ROs plus a few more ranges operating unattended as enroute aids.	

1946	Moncton District Office split up and facilities in Quebec and Labrador handed over to Montreal. A number of ferry command RO's absorbed into new Quebec Region.	Now six District Offices which become Regional Offices in late 1950s.
1950	First ILS commissioned at Dorval	
1954	First VOR's established Montreal/Windsor route.	
1958	ACC's provided with AASR-1 radars.	
1960	With the commissioning of the Air Service Training School (now TCTI) radio operators were, for the first time, trained to work specifically at Transport Canada stations. This was a major breakthrough to the involvement of the Flight Service Station concept. Most of today's Specialists have completed the TCTI course.	Prior to 1960 all radio operators were trained in Provincial Government Vocational Schools or private institutions primarily for employment as ship radio operators. The DOC license itself reflected this.
1966	By this time the vocational and private technical schools were not turning out enough certified radio operators to supply Transport Canada's demand. High School graduates were selected as radio operator trainees.	An agreement was reached between TC and DOC to dispense with the requirement for the first or second class certificate as a pre-requisite for employment as a TC radio operator.
1974	VFR flight planning was decentralized and S&R alerting responsibility was assigned to destination FSS's. This was a significant milestone in the FSS concept.	
1975	PFWIS training commenced. When this service is officially commissioned at more stations the FSS concept will be more apparent to all concerned.	
1978	FSS Implementation Group organized at Ottawa HQ.	
1979	Aeradio RO's became Flight Service Specialists.	

LEGEND:	Inserted by editor
AASR-1	Airport and Airways Surveillance Radar-1
ACC	Airways Control Centre
DND	Department of National Defence
DOC	Department of Communications
D.O.T.	Department of Transport
FSS	Flight Services Station
HQ	Headquarters
ILS	Instrument Landing System
RO	Radio Operator
S&R	Search and Rescue
TC	Transport Canada
TCTI	Transport Canada Training Institute
VFR	Visual Flight Rules
IFR	Instrument Flight Rules
VOR	Omni-Range, Very High Frequency Range

AISIHIHIK STAFF ca 1945

Excerpts from the

LETHBRIDGE AERADIO DIARY

Concerning The

RECORD SNOW FALL DURING THE SPRING OF 1967

entries by John T. (Red) Peddie Electronics Technician

Feb/67	Routine. Weather not too severe for February
Mar 15th	Technician N. Larson to Air Services Training School, Ottawa for Technician's Instrument Landing Systems (ILS) course.
April 20th	**Snow! Snow! Snow!** April 20th, severe snowstorm, near blizzard conditions, able only to check Glide Path and Localizer sites and these with difficulty, all other roads blocked, highways barely passable.
Apl 28th	Storm on 20th was just a taste of things to come. Heavy snow started evening of 27th (Thursday) lessened by 7 A.M. Friday morning but started in again after 8 a.m. with High NE Wind. Techs Takahara and Peddie stuck on Coutts Highway by 10:30 am trying to get to VOR and returned to the airport with difficulty. All transportation (except trains) stopped. Airport closed. Unable to visit any sites for Maintenance from Friday until Sunday morning. Most personnel stuck at airport from Friday morning until Sunday afternoon. Some got back to city Saturday afternoon behind Civil Aviation Bulldozer . Civil Aviation personnel made trip to city limits with bulldozer to bring food to airport. Whiteout during period, snowblower got a start clearing runway 23-05 late Saturday night when visibility improved and opened for air traffic Sunday morning, but highway still blocked so no passengers were able to commute. Glide path inoperative on 28th due large snow drifts and continued inoperative 29th 30th and May 1st. Snow removal equipment unable to operate due ground soft to depth of 1 foot under 5 feet of snow. Finally cleared enough with bulldozer to return glide path to some semblance of normal. Localizer stayed on better than glide path but finally quit by Sunday due snow buildup. Techs Travers and Peddie walked to localizer on Sunday and returned it to operation, considerable trouble with snow freezing on insulators on "on-course detector". Tech Takahara fashioned plastic cover for detector which helped prevent failures. Omni Range (VOR) Transmitter and radio Range on standby power, for extended period during storm. VOR still on emergency power on Sunday. Techs Travers and Peddie got to site by helicopter Sunday morning and refilled daytank for the standby plant. Highways open for one lane of traffic by Sunday evening. Techs Takahara and Peddie walked into VOR site Monday from Coutts highway. VOR control line trouble disabled broadcasts for extended periods. Conditions back to some semblance of normal by Tuesday. Airlift of hay and concentrated feed pellets made by helicopter to feed range cattle. Preliminary estimates upwards of 5000 cattle and over 1,000 calves perished during storm.
May/67	Improvement in weather and return to spring like weather by mid month. Considerable water on fields and seeding not general until 20th of May. Toronto Maple Leafs won Stanley Cup - defeating Montreal Canadians 4 games to 2. Instrument Landing System (ILS) flight checked May 15 and 16th Tech R. Travers won $100 cash award for painting "Convivial Friends", contest sponsored by Sicks of Lethbridge.
May 24th	Tech N. Larson returned from Air Services Training School.

JOHN TELFER (Red) PEDDIE
Radio Operator/Technician

Molly Peddie

Molly Peddie, wife of the late Red Peddie, provided in 1992 these highlights of her husband's radio operating days.

Red joined the Department of Transport in 1941, working at the Monitoring Station in Ottawa, Ontario. In February, 1944, he transferred to Smith River, B.C. In September, 1944, he married Margaret Dodge in Ottawa, and then moved to Grande Prairie, Alta. in October, 1944. In December, 1945, they moved to Penhold, Alberta. In June 1951, Red went to Goose Bay, Labrador on relief duties until September, 1951, when he returned to Penhold, to remain there until August, 1954, when he transferred to Fort St. John, B.C. In June, 1959, he moved to Lethbridge as a radio technician, where he retired in 1981.

Red and Margaret had eight children including two sets of twins. Red passed away June 22, 1988.

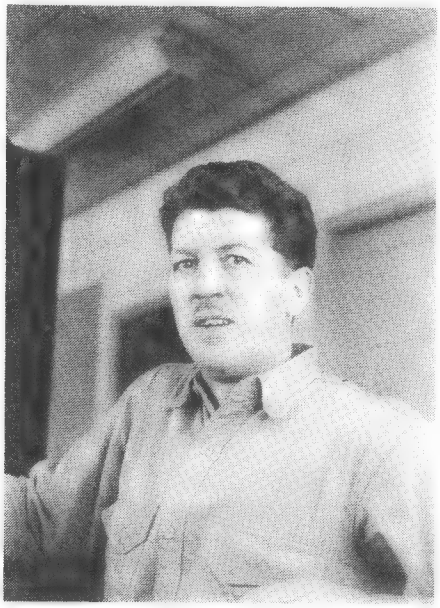
Red Peddie, Penhold, Alberta 1945

Red Peddie and co-worker operating Aeradio Station Smith River, 1944

The Peddie Twins

The first four children the Peddie's had were all girls. They wished for a change and have a boy, and this happened. A little boy arrived and was accompanied by a twin sister, which was fine. They thought another boy would be fine as well, and so this happened, but again a little girl was part of the bargain. That was enough, now there were eight children. Many times the Peddies were asked if each set of twins were identical.....Well!!!

Norm Larson, Lou Lundrigan and Don MacKenzie 1986



G. A. (Al) Stevenson, Radio Operator at Ottawa Monitoring Station 1942-45, Cowley Aeradio 1945-55 and at Lethbridge from 1955 until retirement in 1971

FROM MARCONI TO MICROWAVE:
A SHORT HISTORY OF
TELECOMMUNICATIONS AND ELECTRONICS
IN TRANSPORT CANADA
1901 - 1977

FOREWORD

The initial draft of this "history" was compiled by T.G. (Tommy) Ling and L.G. (Grant) Manery as background information for the "Study of Regional and Field Telecommunications and Electronics Structure" in 1974; it was further edited by O.E. (Ernie) Brown during 1976, and distributed with our 1976 Annual Report.

Over the past year many former employees have provided further information either in conversation or through correspondence with D.A. (Don) Moore. I wish to express appreciation for their contributions. Their additional material has been assimilated with that previously obtained, and has been compiled into the present expanded document by Deborah A. Davidson.

Additional copies may be obtained from the Director General Public Affairs, Transport Canada.

The material presented here may be freely used for reference in the writings of other authors if they so desire, with the proviso that recognition be given to this source.

Comments or suggestions for improvement of the "history" may be sent to the undersigned, and will be retained on file for reference and potential inclusion in any future revisions.

Signed F.E. Lay
Director General Telecommunications & Electronics Directorate
Transport Canada, Tower 'C' Place de Ville OTTAWA K1A 0N5

On December 12, 1901, Guglielmo Marconi sat before a wireless receiving set in a tower on Signal Hill, St. John's Nfld., and successfully received a signal transmitted from a station in Poldhu, Cornwall, U.K. --- a distance of some 1,800 miles. This was the first trans-Atlantic radio signal in history and it took the form of the 3 dots of the Morse Code "S". One can imagine that it must have been weak and heard through fierce static, but it was a signal none the less. One can also imagine the excitement on Signal Hill.

With this small demonstration of the Marconi Wireless, there developed the embryo of a system of telecommunications and electronics that today covers all points of Canada, and extends into outer space with satellites in contact with all parts of the globe.

THE BEGINNING: 1901-1913

Encouraged by the Newfoundland experiment, and backed by $80,000 from the Canadian Government, Marconi set up a station on Table Head near Cape Glace, N.S. On December 15, 1902, a little over a year after the first Trans-Atlantic message was sent, a second one was transmitted back to Poldhu, Cornwall. The Marconi Wireless Telegraph Company of Canada was firmly established.

In 1904, the Department of Marine and Fisheries commissioned the Marconi Wireless Telegraph Company to build a chain of 6 stations: Fame Point, P.Q., Heath Point on Anticosti Island, Point Amour, Babrador, Cape Ray and Cape Race, Nfld. These were known as *marine radio stations*. Of these stations, the Belle Isle and Point Amour Stations proved exceptionally valuable in communicating with steamers coming through the Strait of Belle Isle, and in exchanging information on weather prevailing in the predominantly foggy and ice-strewn straits.

By 1905, the value of the wireless to shipping had become obvious, so stations were built at Camperdown, N.S., Sable Island, Whittle Rocks, Pointe Riche, Nfld., and Grosse Isle, P.Q. Altogether the Department of Marine and Fisheries had 13 wireless stations on the east coast, and in the Gulf of St. Lawrence. In that same year, wireless was installed for the first time on 3 Canadian government ships: the Stanley (a ship of doubtful seaworthiness), the Canada, and the Minto. The use of the Marconi system on these ships resulted in considerable savings both of time and money, in the operation of these vessels. By 1906, 4 more stations had been added to the roll: Quebec City, Sept-Iles and Father Point in Quebec, and Pictou, in Nova Scotia.

After the wreck of the American steamer Valenchia and the loss of 117 lives off Pachena Point on the bleak and rocky coast of B.C. in January, 1906, wireless activity spread to the West Coast. Some systems of communications and navigational aids was needed on the barren coast of Vancouver Island, and the B.C. coast. Wireless stations were established at Point Grey, Victoria, and Pachena Point. In 1908, Estevan Point and Cape Lazo stations were commissioned and in 1909, Ikeda Point at Moresby Island, B.C. joined the list.

Between 1902 and 1910 wireless communication with ships at sea was established on both the East and West coasts, and the Department of Marine and Fisheries created a Radio Branch to deal with the increasing number of stations.

In the East, a rash of new stations came on the air between 1911 and 1923, stretching the communications link from Alert Bay, B.C., to Mayo Landing, Ont., to Port Burwell, P.Q. through New Brunswick, Nova Scotia and PEI., to Newfoundland --- in fact, all across Canada, north and south, inland as well as seaboard. Between 1910 and 1912, the wireless Service was extended to the Great Lakes, with the construction of stations at Port Arthur, Midland, Point Edward, Tobermory and Sault Ste. Marie.

What was life like at one of these early stations? Certainly a far cry from today. Mr. H.H. Gloster, now of London, Ontario was assigned by the Department of Marine and Fisheries to the Alert Bay, B.C. station in 1919. He wrote:

> *"There were only 3 operators on the station, and all were required to work 56 hours a week, including the OIC. There was no overtime, and the pay was $50 per month plus $50 uniform allowance, but we didn't wear uniforms. The equipment was a spark transmitter with a rotary gap, and the receiver was a Carborundum detector, and, of course, no amplifier. AC power for the transmitter was supplied by a generator, driven by a horizontal gasolene engine. To conserve fuel, the power plant was not kept in continuous operation, but only when the transmitter was in use. When the station was called, the operator had to run into the engine room, start the gas engine, then dash back into the operating room and answer the call!*
>
> *Much traffic was handled from the ships at sea, and also from several commercial outfits which were operating including Ocean Falls Pulp and Paper Co., the latter sending 300-400 word radiograms in 5-letter code to their HQ in Vancouver, and these were re-transmitted to the point by us. The junior operator at the station (me) was required to scrub the engine room floor once a week, and keep all equipment clean..."*

The great majority of early radio operators on the east and west coasts had to be double service operators. That is, they used both radio and landline codes. They were also pioneers in their field, and as such, their spirit of adventure was high.

> *"The spirit of competition," wrote George Coffin, another of the pioneering operators, "was high on DF (Direction Finding) stations, not only with the operators, but between stations. This involved the number of bearings and quality. The sense of responsibility was high even if most operators appeared to be full of beans..."*

To deal with the rapidly expanding business of wireless telegraphy in Canada, Marconi transferred his young technical assistant, Charles Peter Edwards, from the English-based Marconi Company, to oversee the construction of Nova Scotia stations in 1904. C.P. Edwards joined the Department of Marine and Fisheries and was made superintendent of wireless stations in 1909. In 1910, he joined the Naval service, with their Wireless Telegraphy Branch, and held the rank of Lt. Commander during World War I. He returned to the Marine and Fisheries Wireless Branch as superintendent in 1922 and from the moment of his appointment, he played an increasingly important part in the development of radio in Canada. His career culminated in his becoming Deputy Minister of Transport in 1941, under C.D. Howe.

In 1912 Canada participated in the International Radio-telegraph Conference held in London. C.P. Edwards was the Canadian representative, as he was to be at many such conferences in later years. The purpose of the conference was to bring about an internationally acceptable standard of regulating the activities of radio. The word *radio* was coined at this Conference in order to distinguish a wireless message from an ordinary telegraph message.

The TITANIC disaster in 1912, when 1503 lives were lost, brought about the first *International Convention for the Safety of Life at Sea*, signed January 20, 1914. This agreement required passenger ships to carry radio-telegraphy equipment, The use and role of the wireless system was expanding.

THE GREAT WAR: 1914-1918

At the outbreak of war in 1914, there were 25 marine Coast Radio Stations on the Atlantic coast, serving the Marine Transportation Industry by providing safety communications and a public correspondence service by radiotelegraphy.

During the war years, 20 government radio stations and all amateur radio stations (108 of them) were closed down for security reasons. Seventeen of these government stations were re-opened when the Department of Naval Service took them over, since their operation was considered vital to communications in the war effort. Camperdown was one of these stations. The stations were under the supervision of Lt. Commander C.P. Edwards.

In 1915, a 40-kw arc transmitter was installed at Barrington Passage, Halifax. It was operated on behalf of the British Admiralty to work British men of war in the North Atlantic. Between 1917 and 1918, two more Direction Finding stations were installed at Chebucto Head and Canso, N.S. In 1918, one was established at Cape Race, Nfld. At the same location, the Marconi Company built a public radio station. It seems likely that the injunction forbidding telecommunications development in Newfoundland in the first place had since been forgotten now that the benefits of telecommunications had been proven.

THE TWENTIES AND THIRTIES

After the war (1922 to be precise) the wartime radio stations were turned over to the Department of Marine and Fisheries once again. The Department created a new Radio Branch with C.P. Edwards as Director. Later on, district offices were set up in Halifax, Montreal, Toronto and Victoria. The Radio Branch continued to grow in size and importance.

By this time too, the Department of Marine and Fisheries owned 34 coast stations, 22 of which were operated by the Marconi Company on behalf of Canada and her

government. There were also 4 Radio Direction Finding stations, whose sole purpose in life was to give radio bearings to ships on request. Bearings so given in 1922 numbered 9,811. The first Radio Non-Directional Beacon was installed in this same year at Cape Ray, Nfld.

The demand for Radio Direction Finding stations grew, and by 1925, there were 8 of these stations, and the number of ship bearings taken more than doubled to 22,831, an average of 2,854 calls per each of the 8 stations per year as opposed to 2,453 per each of the 4 stations in 1922.

To the men who worked these stations, the service was second to none. One incident suffices to illustrate their point. Picture, if you will, a CPR passenger liner outward bound from Montreal, approaching Cape Race, Nfld. *"It is late December,"* wrote Walter A. Garland, who was once assigned to this station, *"and there is a very bad snow storm in progress. The ship had obtained several bearings which the navigator claimed were inaccurate. He asked for another. The bearing was given, and the operator added to the bearing message quote. "This bearing is accurate within 1 degree. You are steaming into danger!" We learned later that the shipmaster exploded "high wide and handsome", cursing the young whippersnapper who was telling him he was wrong. In a case of this kind, the Operator at a Direction Finder had better be right--he was--and the ship's Captain so stated in a letter to the Deputy Minister, C.P. Edwards..."*

During this era of telecommunications expansion, available equipment underwent some changes too. Basic equipment, to begin with, consisted mainly of spark transmitters and coherers--that is, a system using iron filings in glass tubes activated by the electromagnetic waves of incoming signal. Since iron filings tended to stick to the sides of the glass tubes, the system required a *trembler* or *decoherer* that shook the iron filings down to restore their high resonance.

Originally, sparks that activated the wireless system were very thin and very long-- sometimes several inches in length. *Quenched spark* systems, developed by the German physicist Max Wein in 1906, increased sparking, shortened wave length, and increased signal volume. *Quenched spark* and *rotary gap* made the telegraphed signals more distinct and easily identifiable to operators who had to read such signals through a storm of static. But there was still a problem of *ether decay* between spark bursts, a problem that would never be fully resolved as long as sparks were used. But it could be made less of a problem. Marconi's *timed spark* system made it possible to have continuous wave generation. Its greatest limitation, however, was that it was restricted to low frequencies. Around 1908-1909, stations in Canada were supplied with receivers using detectors with a mechanism that had to be wound every few hours.

Antennas where found to have a natural resonance that was important to the tuning of a circuit consisting of antenna, ground and coupling inductance. The 1921 Beverage *wave antenna* became the standard for long-wave reception all over the world.

For receivers, the DeForrest 3-element vacuum tube circuit greatly increased the volume and quality of the incoming signal. After considerable legal trouble (both DeForrest and E.H. Armstrong, another radio-engineer, had filed conflicting patents on the feed-back circuit of the audion) it was found (accidently) that the audion, as well as amplifying received signals, could also be made to transmit them.

Crystal receivers were introduced in the 1920s, with tube-type amplifier stages. Crystal receivers took the place of the coherer/decoherer system, since it had been found that a steel needle resting on a carbon block could sort out radio frequency waves like a coherer, without the fuss of a decoherer. Various combinations of crystal were experimented with: Carborundum in contact with carbon, zinc oxide and chalcopyrite, galena and molybdenum. Carborundum and carbon were used onboard ships since the combination was less sensitive to the various vibrations to be found at sea than any of the other combinations. By 1948, Germanium had emerged and was in common use as the best type of crystal rectifier detector. Later, tubes took the place of crystals altogether, which were in turn replaced by transistors and solid-state equipment. Transmitters of the spark-coil type with a directly connected antenna came out in the early 1920s as well.

Was this equipment any better with regard to reception of signals compared with earlier equipment? W.B. "Champ" Champion first came to the Department of Marine and Fisheries Radio Branch in 1920, with his first class "ticket" signed by C.P. Edwards and Walter A. Rush. His first station was Cape Bear, PEI., call sign VCP, *"and equipment was a "new 10-inch coil crystal receiver, and a 4-cylinders engine and charge batteries, and your duties were to retransmit traffic from Pictou, Nova Scotia to Grindstone. Trying to copy incoming traffic in static was a nightmare..."*

Camperdown, Nova Scotia was *"...the Mecca for code operators. If you were sent to Camperdown, you had proved you could handle traffic. We copied traffic from Sable Island to Cape Sable---at that time most passenger boats could have up to 600 messages which we had to clear to Western Union or CP landlines..."*

In 1924, Champion was sent to Sable Island as Officer-in-Charge. Equipment was *"...4 horsepower upright Lister engine with a synchronous gap and very few spare parts. The luck of the devil kept it going for 2 years..."*

The Canadian government had long been interested in the North since vast quantities of mineral resources were popularly supposed to be up there. And as this government interest in the Arctic increased with the threat of other powers moving in on Canada's back doorstep, so expeditions went northward to lay claim to the Arctic wastes. Another factor that sparked interest in the northland and the one most connected with the Radio Branch was the practical economic necessity of having a closer railhead/port than Montreal for shipping grain out of the *Golden West* on the limited facilities of the CPR. Three expeditions headed by Lt. A.R. Gordon were undertaken in 1884-85 and 86, 41 years before those that finally established a northern port at Churchill in 1927.

In 1886, Gordon had recommended Churchill, Manitoba as the terminus. The government had decided on Port Nelson in its place. In 1927, the railway from Le Pas begun, it was found that a good deep-water terminal could not be built at Port Nelson, as there was no suitable shelter for cargo ships, or indeed ships of any sort in the wide, deep mouth of the Nelson River. So they decided Gordon's choice was the better one, and the Hudson Bay Railroad (which had been heading directly for Port Nelson) was abruptly rerouted toward the more suitable site of Churchill, Manitoba.

What has this to do with Telecommunications? The fact that magnetic compasses tended to go haywire above the 60th parallel made it necessary to have an alternate form of navigation through the far northern waterways. Radio beacons of the type prevalent in those days would be next to useless for ships with magnetic compasses. Gyro compasses were relatively new, and not in general use at the time on ships. Furthermore, navigating safely in the North required a whole new technology. The shipping season is about half as long as that down south, and throughout the summer ice melt, icebergs and ice fields, fog and other northern hazards move without warning with changes in wind and weather.

In 1927, an Advisory Board made up of the Department of Marine and Fisheries, the Department of Railways and Canals and the Department of National Defence planned and organized a combined effort to get around these stumbling blocks to the north. This is where Telecommunications came in: for the first time, aircraft and radio were used together as part and parcel of the normal operations of the Department of Marine and Fisheries.

The RCAF played a major part in this project by surveying the ice fields and other conditions, plus mapping the North by air to ascertain whether or not a northern shipping route would be practical. Aerial surveys were conducted in 1927-28 from Fokker single engine land planes. To keep it touch with these survey planes, stations were built at Port Burwell, Wakeham Bay and Nottingham Island in the Hudson Strait, complete with living quarters, hangers and wireless stations. Port Burwell and Wakeham Bay were ideal for air operations, but they were not very great for radio DF or radio beacon locations. They were badly situated for dealing with sea traffic, built as they were on the wrong side of the headland, and out of sight of the sea-lanes.

These 2 stations were eventually closed down when new stations were built in the summer of 1927 at Resolution Island and Cape Hope's Advance. These new stations were constructed under the supervision of A.N. Fraser and his assistant H.E. Walsh, who lived in tents and ate out of tins with the rest of the men during construction. Both men later occupied key positions in the Radio Branch's Headquarters in Ottawa.

These bases were established mainly to observe weather, ice and berg conditions throughout the year, and to radio the information back to Ottawa. They also provided vital direction finding services to the ships that would come to use the Churchill route.

In 1928, stations at Cape Harrison, Quebec, and Fort Churchill and Chesterfield Inlet, Manitoba, went into operation. Resolution Island joined the airwaves in 1929. By 1930, voice broadcasts were being made from Department radio stations at Coppermine in the Coronation Gulf, Chesterfield Inlet, and Churchill.

From a telecommunications standpoint, the 1928-29 expedition established radio direction finding stations in the north to aid shipping through the Hudson Strait, and laid the foundation for radio links that now connect remote outposts in the Arctic with the rest of Canada. It provided the framework for the modern-day ice observation/reconnaissance service that is carried out in the Arctic via aircraft daily (as weather conditions permit) during the summer shipping season.

Since ground/air radio communication had been used quite successfully in 1927-28 operations, the ground/air service, like the marine service, grew. Ground/air radio facilities first appeared about 1937 at Botwood, Newfoundland, serving the *Flying Boats*--- Pan Am's Clippers, which were 4-engined Boeing aircraft. The early *Air Traffic Controllers* were generally coastal operators of long experience. All ground/air was on *Continuous Wave* with stations at New York, Gander, Shediac, N.B. and Foynes, Ireland. Shediac provided ground/air service to over-flying boats as well. The Clippers were eventually phased out about 1943, and the Canadian based air-traffic facilities were moved to Gander, Newfoundland.

But as the flying boats were phased out, the growing commercial passenger airlines took their place, and so did the need for ground/air communications in World War II. In 1930, Marine became a Department of its own, having dropped Fisheries along the way. It operated as a single Department until November 2, 1936, when the Department of Transport was established by merging the Department of Marine, the Department of Railways and Canals, and the Civil Aviation Branch of the Department of National Defence. Lt. Commander C.P. Edwards, the former director of the Radio Branch in the Department of Marine, became Chief of the Air Services Branch which included his former radio organization, and the Meteorological Services of the Department of Marine. Each of the 3 organizations were given divisional status, and were headed by a Controller. Walter A. Rush, assistant to C.P. Edwards in the old Department of Marine, became Controller of the newly formed Radio Division. Reporting to the Controller of Radio was H.E. Walsh, formerly of the Churchill Project, in charge of marine Radio Aids, and E.G. Bennett was made Chief Radio Inspector.

A few Radio Range Stations had been built in western Canada by the Department of National Defence prior to the formation of the Department of Transport. These range stations served as navigational aids to the pioneering air mail service operated by Western Canada Airways circa 1930. In 1936-37, a big recruitment program was undertaken to obtain staff to build and operate the newer Adcock range stations. These stations used towers rather than DF loops to the greater improvement of the service. By the end of the 1940-41 Fiscal Year, 42 Radio Range Stations and 3 Airport Traffic Control Stations were in operation.

In 1931, Charles A. Lindbergh made his historic flight to Japan via Washington, Ottawa and the Canadian Northwest. In collaboration with the Department of National Defence, all northern radio stations stood by to contact the plane, whose radio equipment was operated by Mrs. Lindbergh. Full information with regard to fuel stops in the Northwest and Arctic regions, as well as weather and flying conditions were passed on by Canadian operators.

In 1936-37, bearings and weather reports were given to the German dirigible *Hindenberg* by east coast DF stations.

Also in 1936, Trans-Canada Airlines was formed, and accordingly, radio aids to air navigation were enlarged to accommodate the airline and its routes as well as its sister companies: Canadian Pacific Airlines, Maritime Central Airways, and the U.S. airlines. By 1945, there were 87 radio ranges built to accommodate these airlines.

THE SECOND WAR: 1939-1945

With the coming war, came changes to the Department of Transport and the Radio division. Radar came into operational use first in Britain, where some means were needed to warn of the approach of enemy aircraft. Radio seemed the answer, since it had been found that objects in the path of a radio wave could be detected by the energy reflected from them. It did not matter whether such an object was obscured in darkness, or lost in fog; it could still be detected. Responsibility for radar came under the care of Walter A. Rush and the Radio Division.

But the coming of radar to Telecommunications in Canada was not an easy process. A delegation of scientific representatives from the United Kingdom came to Canada in 1939 to demonstrate the latest ideas in radar equipment.

In the spring of 1940, with the war situation deteriorating in Europe, the National Research Council got a development program underway, and Canada quickly demonstrated her capabilities in turning out high quality radar equipment. Radar was developed for the Royal Canadian Navy for use in detecting surface vessels entering Halifax harbour.

During this time too, radar was needed to provide accurate control of anti-aircraft guns used in the defence of Britain. Canadian equipment was adapted for airborne radar detection of surface vessels (for example, enemy submarines and battleships) and radar was no longer grounded.

The work done under Mr. Rush and his Department during World War II includes the rapid growth of radio and radar, and proves that Transport's Radio Division certainly didn't twiddle their thumbs for 6 years. Long range, high frequency radio direction finder stations were established, and contributed a great deal to the safeguarding of convoys, and the saving of Allied lives at sea.

Canadian Direction Finding stations played a large part in the finding, hunting down, and eventual sinking of the German battleship *Bismark*.

The main facilities available between 1938 and 1946 for intercepting shortwave transmission from German battleships and wolf-packs was provided by the Department of Transport's Radio Division. The majority of these transmission could not be heard in England because of special conditions affecting shortwave propagation. For example, at the Hartland Point Monitoring Station, over 100 operators continuously monitored the Bismark's communications, upon discovery of her radio frequencies. The Bismark's position in the Denmark Strait was then supplied to the Admiralty in London.

The method used in tracking down both the Bismark and German submarines was DF bearings from shore stations plotted to give positions to ships at sea, which in turn used radar to search the area. The Vancouver Monitoring Station and the Winnipeg and Strathburn Ontario stations performed a similar service with regard to the interception of both Japanese and German transmissions.

To meet the needs of the expanding Royal Canadian Air Force, the British Commonwealth Training Program, the Ferry Command and the United States Army Air Force, new radio aids and navigation facilities were developed and built. By the end of the 1943-44 Fiscal Year, the Radio Division of Department of Transport was operating 100 stations for Air Navigation, and 86 stations for Marine Navigation.

In 1944, the Ottawa and Lulu Island Vancouver Transmitter Stations were developed for the combined use of the Marine Section, Aviation Section, and the Airlines.

In Newfoundland in the early 1940s, the Canadian Department of Transport installed and operated 4 radio ranges and non-directional beacons. Air/ground services at Gander for overseas flights were first operated by RAFTC (Royal Air Force Transport Command). In 1946, the Newfoundland government took over that operation, and at Confederation in 1949, it was transferred to the Department of Transport.

At the outset of World War II, bomber aircraft were desperately needed in Great Britain to further the war effort in the Battle of Britain. Sending these aircraft by ship was impractical and uneconomical since Allied Convoys tended (understandably) to be attacked and/or sunk. The obvious solution was to fly them across the Atlantic, over Greenland, Iceland, and then to Britain---a Ferry Service. So civilian pilots were assembled to take these aircraft across the Atlantic. It might also be added that the return trip for the pilots was far more hazardous than the flight out. The return trip was made aboard the ships that ran the gauntlet of enemy submarines.

Radio operators were needed to man new air/ground radio stations at Montreal, Goose Bay and Moncton. Department of Transport Radio Operators volunteered to fill the need.

W.A. Rush's Division also had the responsibility for assigning frequencies in the radio spectrum as required by the Armed Forces of Canada, and acted as Liaison Officer to coordinate frequency allocations with the United States, the United Kingdom, and Newfoundland authorities. This was no easy task. In 1932 Rush had informed the International Telecommunications Union (ITU) that it was impossible to find radio frequencies with the spectrum already filled! This

led to the enlargement of the "Table of Frequencies Allocations" that had been formulated at the first ITU Conference in 1912, to include VHF, UHF and on to microwave.

Research was coordinated through W.A. Rush and the Radio Division to eliminate interference in service aircraft, aboard Navy ships, and in Army vehicles. The Coastal Radio-Telephone Network of departmental stations in the St. Lawrence was extended for the expeditious control of convoy movements at the height of the U-boat campaign in the North Atlantic. The Marine Radio Beacon System was enlarged for the benefit of shipping, and as an aid to air navigation.

As coastal radio operations spread with their increasing value to the war effort, so the Ottawa Headquarters of Aviation Radio Aids expanded too. In its first stages, the Ottawa headquarters of Aviation Radio Aids directed its activities from coast to coast. Then an Eastern Canada office was opened in Toronto under H.J. "Jeff" Williamson, and a Western Canada office was opened at Winnipeg under W.E. "Bill" Fenn. By the latter part of 1939, the Eastern Canada workload was split with a new district Radio Aviation Office under A.A. Albulet at Moncton, covering Montreal to the East Coast. In 1941, the activity of the Northwest Staging Route required a Western Canada Split with a new office in Edmonton under H.J. Williamson. This office was responsible for facilities from Calgary northward, including parts of British Columbia. The Winnipeg office retained its responsibility for southern Alberta and the rest of British Columbia. By 1943, an office was established in Vancouver under R.G. "Buzz" Butler. Southern Alberta was added to the Edmonton District.

Finally, in 1946, a Montreal office split off from Moncton, with J.A.Albulet as District Radio Aids Engineer (DRAE) and R.G. Butler as DRAE in Moncton. This established the present-day system of 6 regions: Pacific, Western, Central, Ontario, Quebec, and Atlantic, plus a few changes that occurred in boundaries from time to time.

During this period of growth, the staff of Radio Operators and Technicians increased as new stations and facilities were added.

Radio range stations provided voice communications of the LF Range Transmitters, made scheduled weather broadcasts, and received air to ground communications on HF channels. Generally a station location "Z" marker, operating on 75 Mhz was associated with each radio range at 71 stations. The Airport Traffic Control stations used an LF transmitter operating at 278 Khz and also received on the HF channels. At this time the "new" technology of VHF voice communications was being introduced and VHF transmitters and receivers began to appear at Radio Range Stations and Air Traffic Control Towers for radio air/ground voice communications. The radio operator staffs of the radio range stations operated and maintained their own equipment. They also maintained the equipment of Air Traffic Control Services. The operating staff also provided a weather observation and reporting service at many of the stations. Technicians from the District offices installed new facilities and carried out major repairs and adjustment.

After the war ended, many of the military air-radio stations were transferred to the Department of Transport. These stations included those at The Pas, Churchill, Coral Harbour, Frobisher Bay, Goose Bay, and Montreal. With the take-overs of Coral Harbour and Frobisher Bay, the Department of Transport was getting farther into the Canadian North. Resolute Bay on Cornwallis Island was taken over from the RCAF in the mid-1950s, and Transport and the Radio Division were now well above the Arctic Circle.

When Newfoundland came into Confederation in 1949, the stations at Goose Bay, Gander and in the Belle Isle and Hudson Straits became the responsibility of the Department of Transport.

In 1946, came the *Decca Navigator*---a radio position fixing system that operates automatically and continuously in conjunction with groups or chains of land transmitting stations. The system enables the mariner or the pilot to obtain his position with a very high degree of accuracy.

The *Decca Navigator* system enables use of a pre-mapped grid of lines based on phase-comparison of radio transmissions received from combinations (chains) of Decca Navigation stations.

Also around this time came the LORAN system--Long Range Aids to navigation. LORAN is a system of position finding based on the difference in the time of arrival of pulse-type radio signals transmitted from a pair of stations. During 1947-48, 3 standard LORAN stations at Deming and Baccaro, N.S. and Salt Spring Island, B.C., formerly operated by the Canadian Navy, were taken over by the Department of Transport. A new Loran-C facility was commissioned at Williams Lake, B.C., on September 5, 1977.

AFTER THE STORM: THE FIFTIES

The period of the 1940s and 1950s saw great expansion of communications facilities to serve the growing overseas airline services and the opening of the Canadian North. HF radio telephone and radio telegraphy installation multiplied rapidly for a time and large volumes of messages were handled by the CW operators of the day, using Morse Code. The same period saw a similar expansion of Air Traffic Services and their radio facilities provided by the Radio Aviation Branch. Instrument Landing Systems (ILS) made their appearance in the early 1950s followed by VHF Omni-ranges (VOR) in the mid-1950s and then the first large scale radar systems.

When war broke out in Korea in 1950, 3 major chains of radar stations were built across Canada in the interests of Continental Defence. The first one of these was the *Pinetree Line* put together by Canada and the United States, roughly along the 49th parallel. In 1954, two other radar warning lines were planned. The *Mid-Canada Line* was built along the 55th parallel, and used equipment developed by McGill University in conjunction with the Defence Research Board of the RCAF. The *DEW Line* or *Distant*

Early Warning Line was built along the Canadian Arctic Coast, and was entirely financed by the Americans.

The Department of Transport set up radar as a Navigational Aid for ships and aircraft, for storm detection, and local weather forecasts. In the 1950s, the Department also installed airport and airway surveillance radars at each of the major airports in Canada. These radars were used for the control of air traffic within 150 miles of the congested air terminals.

During the late 1950s and on into the 1960s, radar equipment became increasingly more reliable as the state of the art advanced. This allowed a reduction in maintenance time and also made practical the employment of facilities on an unattended basis.

It was possible to place radio-beacon equipment which responded to commands from passing vessels, ashore at strategic locations without the necessity of attendant staff. Another application was found in radio-equipped location buoys.

In general, with the development of the transistor and the growth of solid-state equipment, radio installations became progressively more compact and failure-free.

Landline networks of the Wireless Companies also grew in the 1950s. Expanded teletype networks were made available to replace many of the radio point-to-point communications circuits of the Department of Transport. The remaining point-to-point radio communications circuits were converted to radio-teletype over a period of time.

Microwaves came into common usage in the 1950s. Experiments with microwaves had been carried out since the 1930s. Microwave was widely used by military signal units in World War II. After the war the demand for communications services increased, and a new means of handling this large volume of traffic was needed. The HF spectrum was overcrowded, and conventional microwave communications systems cannot be used world-wide because of the curvature of the earth. Such a curvature blocks line-of-sight transmissions across the long over-ocean paths. The problem has since resolved itself with broad-band undersea coaxial cables, and microwave satellite systems. In the modern day, microwave is used to transmit telephone calls around the world by bouncing signals from satellites, (the same thing happens to television signals), for navigation purposes and for radar installations.

The name *radio* was changed to *telecommunications* in the early 1950s, in recognition of the expanded responsibility for electronics systems other than those identified with *radio*; for example, landlines and teletype systems.

In 1954, the Air and Marine sections of the Radio Branch were combined into Radio Aids to navigation, and H.E. Walsh became Chief. J.R. MacKay was Superintendent of Radio Aids Construction, and E.F. Porter was Superintendent of Radio Aids maintenance and Operations. G.C.W. Browne was Controller of Radio with E.G. Bennett as Assistant-Controller. Radio Frequencies and Licensing were under C.J. Acton, and C.M. Brant was appointed Superintendent of Radio Regulations. The responsibilities of the Radio Regulations Division had grown over the years, from simply licensing amateur radio stations in the very early 1900s to developing rules for safety of life at sea to allocating frequencies in the upper and lower spectrums, and on into the regulation of satellite communications.

In 1955, Radio Inspection, Radio Inductive Interference, Broadcasting and Measurements, and Radio Frequencies Licensing were combined into Radio Regulations under the supervision of C.M. Brant. It was his job to organize the lot into the Radio Regulations Sub-Division.

In 1956, the Radio Division became a Branch, and the Controller became a Director. The Superintendent of Radio Aids, H.E. Walsh, became Division Chief. The superintendent of Radio Regulations became the first controller of Radio Regulations. At the same time, District Superintendents were appointed with districts corresponding to those of the DRAE's.

A short while later, District Controllers of Radio were appointed and were made responsible for both the Aid and Regulatory responsibilities of the Division. In the meantime, E.G. Bennett and G.C.W. Browne had retired, and F.G. Nixon became the first Director of Telecommunications and Electronics.

In 1957, the Canadian Marconi Coast Stations at Grindstone Island, North Sydney and Battle Harbour were taken over by the Department of Transport.

In 1959, C.M. Brant became Chief, Technical and Policy Coordinator---a new division combining landline and common carriers and Research and Development. This position made Brant Deputy Director of the Telecommunications and Electronics Branch.

In the same year, Transport took over the operation of certain Department of National Defence radio stations in the Yukon and the Northwest Territories. These stations had previously been operated by the Royal Canadian Corps of Signals.

THE SIXTIES AND SEVENTIES

In 1960, yet another change was made to Telecommunications and Electronics. The T&E organization was enlarged to cover the full range of electronics facilities and services within Transport Canada, including navigational Aids, Radar, Communications of all varieties, and an assortment of Automation systems thereto connected.

In 1962, that "Mecca" of Radio Operators, Camperdown, N.S. was closed down, and became Halifax Marine Radio Station. The Halifax Radiotelephone station was decommissioned at the same time.

Also in 1962, satellites came into prominence in Canada with the launching of the first *Alouette* satellite. Three more satellites were launched thereafter between 1965 and 1974, *Alouette II, ISIS I and ISIS II.*

Telesat Canada was created in 1968 by Parliament as an independent corporation in which the government held shares, to run a domestic satellite communications system..

When Telesat Canada launched *ANIK I* in 1972, Canada became the first country in the world with a domestic telecommunications satellite network in geostationary orbit. There are now 3 such satellites in the system, and 70 ground stations which cover all corners of Canada with the exception of the extreme North.

In 1976, the Federal government cooperating with the United States and European governments, built and launched the *Communications and Technology Satellite (CTS).*

Since the launch of the first *Alouette* satellite, the Department of Communications and Transport Canada (whose air and marine divisions use satellites for both communications and navigation) have become increasingly involved in International satellite ventures: for example, *INMARSAT, SARAT, MARISAT, NAVSTAR.*

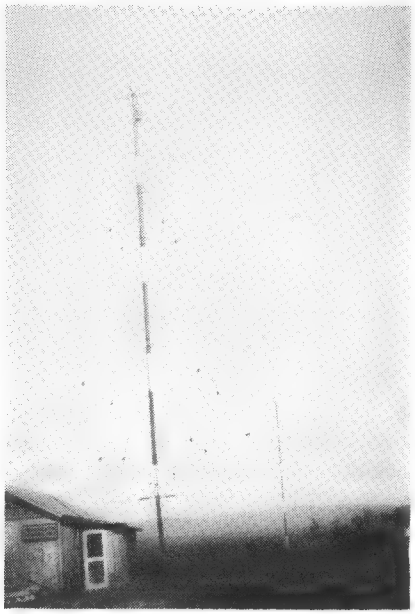
In 1968, control and regulation of radio passed out of the hands of the Department of Transport and into those of the Postmaster General, until such time as the new Department of Communications could take it over. It has since become the special responsibility of that department.

The modern Canadian telecommunications system of the 1970s is one of the best in the world. Telecommunications and Electronics in Transport Canada covers such areas as Marine and Coast Guard Aids to navigation and radio stations, air traffic control, aeradio, and international communications satellites. The Telecommunications and Electronics Organization has expanded so much that in order to adequately serve the Marine and Coast Guard requirements, a separate Coast Guard Telecommunications and Electronics Branch was formed. The T&E Branch (Air) continues its role with respect to the Air Administration, while the Coast Guard T&E Branch serves the Marine Administration.

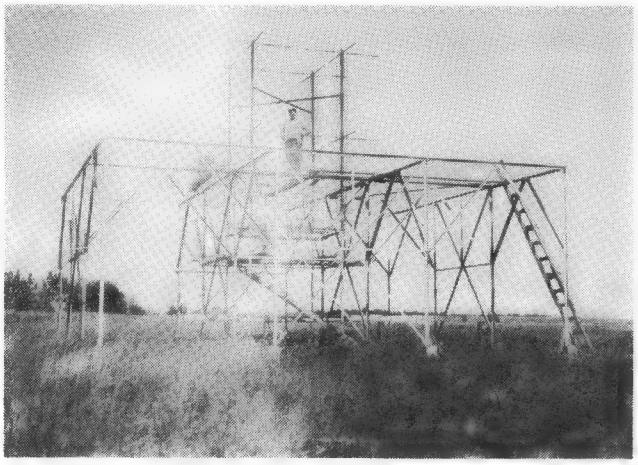
A Telecommunications and Electronics Directorate now provides an overview and a focus for T&E matters for the whole Department and its external relationships. The first incumbents in the positions heading up the new T&E organization at Headquarters in Ottawa which came into effect late in 1973 and early 1974 were: E.F. Porter as Director General, T&E Air, and B.B. Borodchak as Director, Coast Guard T&E. This changed in the fall of 1975 when E.F. Porter retired, and F.E. Lay became Director General in his place. J.M. Belcher then became Director, T&E Air.

Telecommunications and Electronics in Canada has come a long way since that cold Newfoundland day in December, 1901. The original 6 coastal stations of 1904 have become 115 aeradio stations and 52 Canadian Coast Guard radio stations or combined stations in Transport Canada alone. Having covered Canada with the world's best telecommunications system with regard to radar, radio communications with remote outposts and those not so remote outposts, DF, and satellite communications, there is now a push toward world-wide communications in the form of international joint ventures: *INMARSAT, MARISAT, AEROSAT.*

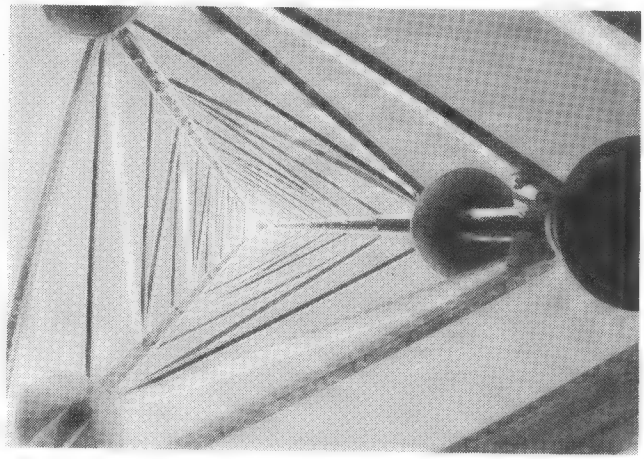
Perhaps sometime in the distant future, Canadian telecommunications will be in communication not only with all parts of the globe, but with other planets as well.



COMMUNICATIONS ANTENNAE
Norman Wells, NWT



A typical "Cone of Silence" Marker Antenna above counterpoise at all Radio Range Stations



Triangular radio range tower as viewed from below.
From insulators to top, 125 feet.

HISTORIC AIRCRAFT CALLS IT A DAY

Taken from ■ ca.1960 Department of Transport circular

The aircraft which made history with the first dawn-to-dusk flight from Montreal to Vancouver is being retired from the Department of Transport airfleet. The CF-CCT, a Lockheed 12A, made its record-breaking flight on July 30, 1937.

In service continuously from that year, it is believed to hold the record for the longest operational period of any aircraft in Canada. The sturdy Lockheed is quitting for lack of spare parts, not lack of spunk!

On her glory day CF-CCT left Montreal at 4:20 a.m. and arrived at Sea Island Airport, Vancouver at 6:29 p.m., with 14 hours, five minutes of flying time. Refueling stops were made at Gilles, Ont.; Sioux Lookout, Ont.; Winnipeg, Man.; Regina, Sask.; and Lethbridge, Alta.

On board the Lockheed to mark the event were the Hon. C.D. Howe, minister of transport; Commander C. P. Edwards, deputy minister of transport, (air); and H. Symington, K.C., first president of Trans Canada Airlines. Pilots were J. H. Tudhope, who died in 1957, and J. D. Hunter, now superintendent of TCA flight operations. Lew Parmenter was flight engineer.

Jack Hunter's D.O.T. career has been closely linked with that of the CF-CCT. He was in the RCAF at the time the Montreal-Vancouver flight was planned and was asked to join the department for the express purpose of co-piloting the craft to Vancouver with "Tuddy".

Following the dawn-to-dusk flight, the aircraft was assigned to airways duty in the Edmonton region - as was pilot Hunter. He flew it throughout the next 15 years to carry out the initial calibrations for Canada's first cross-country radio ranges, to develop the Northwest Staging Route to Alaska during war years, and to fly the Mackenzie River route to Norman Wells in the early 1940s.

In 1952 Jack Hunter was transferred to Ottawa and four years later, the CF-CCT was transferred to Moncton region. And it is from there that it will soon make it last flight to Ottawa, and an honoured spot in the National Aviation Museum which, incidentally, is only a stone's throw away from Hunter's office at Ottawa Airport.

Photo below: CF-CCT Lockheed 12, was used for the dawn-to-dusk flight from Montreal to Vancouver in July 1937, and was the first aircraft to land at the new airport at Lethbridge. She now is property of the National Aviation Museum in Ottawa.

TRANSPORT CANADA RETIRES DOUGLAS DC3 CF-CUE

Taken from Transport Canada Western Region Newsletter "Flyer" No. 40 December 1990.

After nearly 50 years of faithful service, Transport Canada's workhorse airplane, the Douglas DC3 CF-CUE, is being put out to pasture. CF-CUE, based at Edmonton Municipal Airport departed Western Region on her final flight in the early hours of Oct 9, 1990.

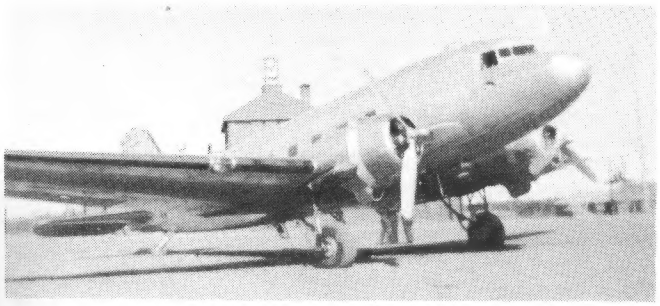
The crew that morning consisted of pilots Dave Falardeau, Director Flight Services; Bill Muise, Air Nav. Requirements; and engineer Darryl Osborne, all from Western Region. This flight was not to be a round trip, they were ferrying the plane to Ottawa where she remains on the ramp at the D.O.T. hangar awaiting a decision as to her final fate.

Commemoratively named the Mel Bryan by Transport pilots and crew for this last flight, she was wished a fond farewell by those who came out to the airport that morning to witness her departure.

The DC3 is a flying legend. In World War II, the plane - dubbed the "Dakota" by British Commonwealth Air Forces - earned praise for its durability in combat missions. Three squadrons flew with the Royal Canadian Air Force from 1944-45, with her crews earning a total of 61 honours and awards.Transport Canada's DC3, civil registration CF-CUE, was manufactured by the Douglas Aircraft Company, Santa Monica, California in April 1944 as a "C47A" for delivery to the United States Air Force. She flew with the U.S. Air Force for two years and nine months, and was later sold to Canadian Pacific Air Lines (CPAL) for use on passenger routes in Western and Northern Canada. In January 1958, the Federal Department of Transport purchased CF-CUE from CPAL for service with its Aircraft Services Directorate. Western Aircraft Services, in Edmonton. Operating first out of Hangar seven, and then out of Hangar five at the Edmonton Municipal Airport, CF-CUE had by June, 1989 flown a total of 31,457 hours, or 4,718,550 nautical air miles - the equivalent of 218 around-the-world flights.

After 48 years in the air, CF-CUE has averaged 700 hours a year in flight - an impressive record, even by modern standards.

Note: CF-CUE has since been taken out of retirement and is now based on the west coast. Norm Larson 1992



Typical RCAF DC3 that served the northern airports.

THE FLIGHT CHECK AIRCRAFT

Before RADIO AIDS can be used by any aircraft, it is necessary that these be checked to meet national and international standards.

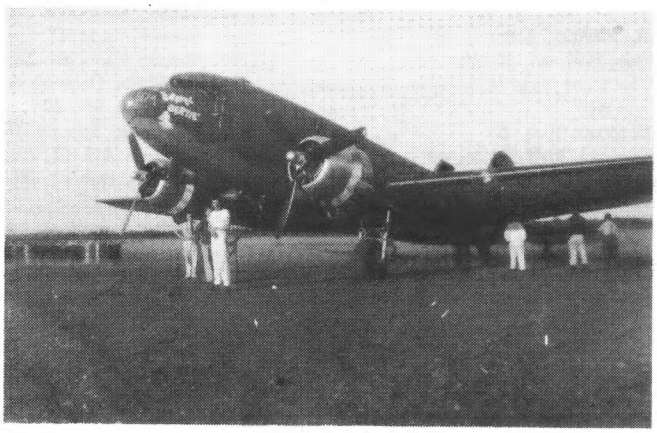
Aircraft such as CF-CCT - Lockheed 12A, Douglas DC3s such as CF-CUE, CF-FAX, CF-DTH and many others are loaded with electronic flight checking equipment, actually flying laboratories.

Pilots and flight check electronic technicians are specially trained to check the radio aids. First, to commission them on the air and thereafter to make periodic checks to ascertain if these radio aids are operating within specified tolerances.

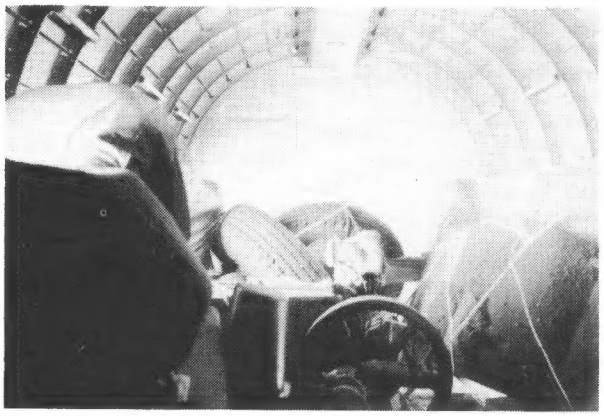
On the ground, station electronic technicians maintain their equipment to these flight check tolerances.

Flight service personnel (formerly called Radio Operators) maintain a 24-hour vigil by monitoring all aids and notifying the proper authorities when something goes out of tolerance.

Communications are handled by flight service stations and air traffic control personnel.



Gravel Gertie - a typical Douglas DC3



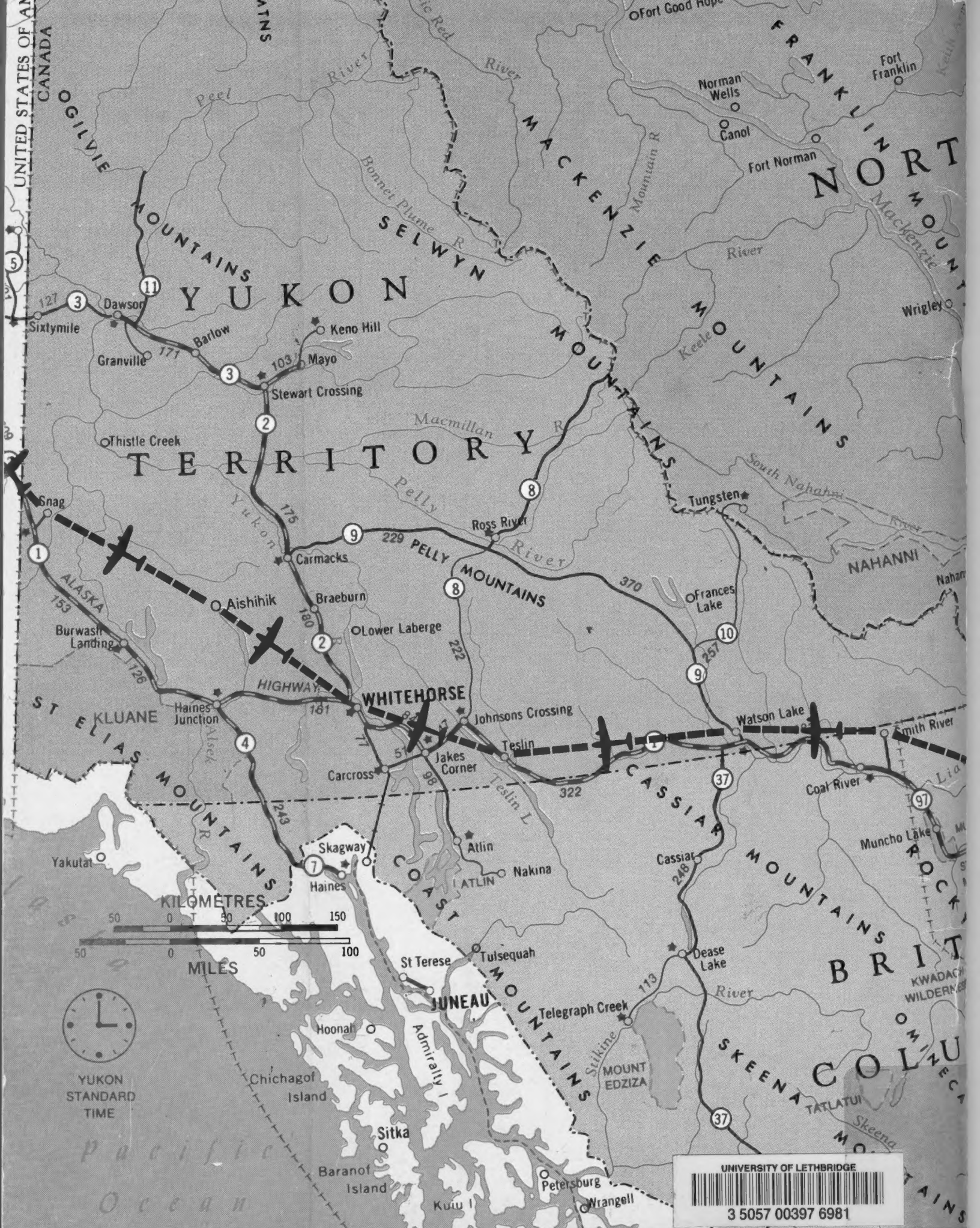
Interior of a DC3 transport carrier, with no interior insulation it was quite cool for travelling personnel.

INDEX

Many names, place names, locations etc are referred to repeatedly throughout this work, and were considered too numberous to be included in this listing.

Acton, C.J. 64
AEROSAT 65
Ainsworth, Harry 20
Air Harbours 31
Air Services Training School 56
Air Transport Command 41
Alaska Airlines 5
Alaska Highway 2, 14, 15, 21, 27, 29, 31, 35, 36, 37, 38, 39, 47, 53
Albulet, A.A. 63
Alcan Project 5
Allan, Harry 7, 20, 50
Alouette II 64
Alouette Satellite 64
ANIK I (Canada's) 4, 65
Antilla, Ollie 5, 13, 31
Armstrong, E.H. 60
Bailey, Bill 12
Baker, Jack 18
Barlow, Hugh 20
Batts, Jack 53
Bean, Gordie 20
Belcher, J.M. 65
Bell, Jimmy 31
Bennett, E.G. 61, 64
Blackmeyer, Jerry 46, 47
Blair, Bill 46, 47, 50
Blatchford Field (Edmonton Municipal Airport) 31
Blenkarn, R.A. 20
Blezzard, Wilf 39, 46, 47
Bonitz, Max 12, 20, 44, 45, 46, 47
Borodchak, B.B. 65
Boss, Ned 47
Boudreault, Johnnie 20
Bough, Glen 20
Bouska, Arnold 12
Bowden, Harold 12, 20
Boyd, Ivan 12
Brant, C.M. 64
British Commonwealth Training Program 62
Bromley, Albert 12, 20
Broughton, Don (Junior) 5, 20
Brouse, Alex 20
Brown, A "Pop" 47
Brown, Frank 20
Brown, Les 46
Brown, O.E. (Ernie) 17, 20, 33, 58
Browne, G.C.W. 24, 64
Brundrett, A. 20
Bryan, Mel 67
Bucknell, Harold/Harry 45, 47, 49
Bullock, Donald 20
Burwell, Fred 20, 42
Buss, Ron 20
Butler, R.G. (Buzz). 63
C119 Flying Boxcar 40
Campbell, Gordon 46, 47, 49, 51
Canadian Marconi 26, 64
Canadian Navy 1
Canadian Pacific Airlines (CPA) 5, 18, 19, 28, 31, 33, 37, 38, 39, 40, 48, 62, 67
Canadian Pacific Railway (CPR) 9, 19, 52, 60
Canol Project 3, 5
Cantera, Dave 46, 47
Carley, Elmer 20
Carty, Des 14, 20
Cassie, Gord 20
CF-CCT 66, 67
CF-CUE 53, 67
CF-DTH 67
CF-FAX 67
Chadburn, W. J. 2
Chalmers, John/Jack 5, 20
Champion, W.B. "Champ" 60
Chevrier, Lionel 30
Churchill, Winston 38
Civil Service Commission 21
Clarke, Hugh 20
Clemo, Russ 5, 12, 20
Clute, Pete 20, 43
Coffin, George 59
Cole, Frank 20
Collins, Lloyd 20
Collomby, Bob 20, 43
Communications and Technology Satellite (CTS). 65
Condill Hotel 38
Cone of Silence Marker 2, 24, 37, 65
Connolley, Jim 14, 20
Conrell, H.E. 2
Coulter, Al 20
Cowley, Mr. 30
Coyne, Kevin 12, 20
Crouch, Gerry 47
Crump, Chris 20, 29
Davidson, Deborah A. 58
Davidson, Mr. 20
Davidson, Tommy 34
Dawson, Alf 12, 20, 48
Dawson, Bob 12, 20, 29
Dear, Stan 12
DeForrest 3-element vacuum tube circuit 60
Dennis, Tom 53
Department of National Defence (DND) 1, 31, 54, 61, 62, 64
Devlin, Bob 20
DEW Line (Distant Early Warning) 3, 63
Dewores, A. 20
Dick, Ray 14
Distance Measuring Equipment (DME) 3
Dominion Weather Service 19
Douglas DC3, 37, 67
Dyke, E. 20
Edmonton Air Services Region, 21
Edmunds, Bill 20
Edwards, Arnold C. 2, 20
Edwards, Charles Peter 59, 60, 61, 66
Eldridge, Phil 5, 20
Empress of Canada 52
Empress of Japan 52
Ericksen, George 12, 20
Essex, Jim 20, 39
Ewing, Stuart 20, 49
Fan Markers 24, 42
Fenn, W.E. "Bill" 63
Fenton, Bud 31
Ferry Command 62
Fisher, Charlie 20
Flick, Alfred "Chil" 12, 20, 48
Foley, Tom 29
Foster, Frank 32
Foxcroft, Herb 5, 12, 20
Fraser, A.N. 61
Freck, W.L. (Bill) 20
Fulton, R.S. 20
Galinas, George 20, 43
Gangbar, Sammy 20
Garbutt, Bill 29
Garland, Walter A. 60
Gauld, George 12, 20
Georgy, Leo 20
Gilbert, Edward Arthur 42
Gilchrist, Tom 12
Gloster, H.H. 59
Goodwin, George 5, 13, 20, 47
Gordon, A.R. 60
Gould, Erwin 20
Grant, Frank 5, 12, 13, 20
Griffith, Ed 20
Grimbey, J. 20
Grow, Barkley 4
Guinness, Pierre 20
Hallson, Magnus 20, 28
Halton, Matthew 34
Hannah M. 2
Harding, Gord 5, 13, 20
Harmer, Reg 20
Harris, Lawrence C. (Lofty) 52, 53
Hart, Curt 5, 12, 20
Harvey, Don 20
Hauch, Gordon 20, 28
Hawkes, Harold 20
Heath, G. 2
Heath, Jerry 29
Higgin, L. 2
Higgins, Larry 29
Hindenberg 62
Hockin, Will 40
Holliday, Al 20
Hollinger, Bill 20
Hooper, Herman (Hoops) 12, 20
Howe, Hon. C.D. 66
Howey, Oliver 4, 14, 20, 47
Hubbard, Max 5, 12, 13, 20
Hunter, J.D. (Jack) 66
INMARSAT 65
Instrument Landing Systems (ILS) 38, 55, 56, 63
International Morse Code 53
ISIS I 64
ISIS II 64
Isolation Allowance 21
James, Ted 11, 20
Jaworski, Flt. Lt. 48
Jensen, M.R. 2
Jewell, Bill 49
Johnson, Vic & Kattie 18, 40
Johnson, Warren 5, 12, 13, 20
Jones, Bob 20
Kandell, Joe 5, 20, 27
Kandell, L.J. 20
Keil, Fred 20
Kenyon Field (Lethbridge Airport). 42
Kenyon, Hollick 28
King, Ron 20
Kliner, Bob 20
Krutko, Alex 12, 20
Lambert, Eric 20
Lambert, Mr. 35
Larson, Norman L. 20, 35, 39, 40, 56, 57
Latcham, Walter 20
Laughton, Larry 20
Lawlor, Tom 20
Lay, F.E. 58, 65
Lee, Bill 20
Lee, Tom 20, 43

Lehman, Joe 20
Leith, Stroy 5, 13, 20
Lentsch, G. 2
Lethbridge Herald 14
Levesque, Harold 20, 29
Lindbergh, Charles A. 62
Lines, Gord 20
Ling, T.G. (Tommy) 58
LORAN System (Long Range Aids to navigation) 3, 63
Louis, Joe 38
Lowe, John 46, 47
Lumb, J.P. 2
Lundrigan, Enos (Lou or LU) 20, 57
Lynch, George 29
MacIntosh, Bill 20
MacKay, J.R. 64
MacKenzie, Donald George (Don) 20, 27, 50, 57
MacKenzie, Etta 27
Macleod, Gordon 47
MacNaughton, Percy 47
MacPherson, Les 29
Macplan 1, 4
Main, J.R.K. 30
Manery, L.G. (Grant) 58
Marcelle, Babe 20
Marconi 1, 14, 59, 60
Marconi School 32
Marconi Wireless Telegraph Company of Canada 58
Marconi, Guglielmo 58
MARISAT 65
Marr, Jimmy 5, 12, 13, 20
Martell, Leo 18
Martin, Hugh (Duke) 5, 13, 29
Matheson, Alan 20, 47
McCleery, R. & Mrs R. 43
McConachie, Grant 2, 4, 5, 18, 19
McDonald, Don 5, 20
McGlashan, George W. 2, 20
McIntosh, Bill 34
McLaren, Cleve 46
McLauchlan, W.R. 20
Mcleod, Gordon 46
McMillan, Keith 20
McNaughton, Percy 46
McNeil, Ron 20, 34
McPherson, Ernie 20
McPherson, Les 20, 30
Mears, Homer 5, 9
Melnychuk, W. 20
Mennie, John 20
Mid Canada Line 3, 63
Miles Canyon 10
Million Dollar Valley 7
Moore, Bill 20
Moore, Donald A. (Don) 20, 44, 45, 51, 58
Moore, Jack 20
Morrison, Stan 20
Morse code 18, 19, 21, 28, 30, 32, 42, 47, 52, 53, 54, 58, 63
Morton, Keith 11, 20, 43
Murray, Bill 20
Murray, Harold 20
Nablo, Keith 20
NAVSTAR. 65
Neiman, Paul 50
Nelson, Elmer 5, 20, 31
Nelson, Larry 6, 13, 20, 32, 52
Nisutlin Trading Post, 43
Nixon, F.G. 64
North West Territories and Yukon System (NWT & Y System) 1.
Northern Electric Co 26
Northwest Staging Route 2, 4, 5, 6, 20, 27, 28, 29, 30, 31, 33, 35, 36, 37, 42, 45, 47, 51, 53, 63, 66
Norton, Tom 20
O'Connor, Joe 20
Oakes, George 20
Oakes, Ralph 18
Oliver, Ray 5, 13, 20, 29
Omega 4
Ostrom, Bud 20, 27, 28
Otis, J. Harold 20
Palmu, Neil 12
Pan American Airlines 5, 7
Parmenter, Lew 66
Parsons, Frank 20
Patry, Don 4
Pearl Harbor 5, 36
Peddie, John T. (Red) 20, 56, 57
Peddie, Molly 57
Perrier, Frank 18, 20
Perry, Ross 20, 33
Persse, Harry 20
Persson, Hank/Henry 20, 27, 28
Philpott, Guy 20
Plosker, K. 20
Porter, Earle F. 5, 64, 65
Proctor, Jack 20, 43
Quinn, John 20
Radio Receptor Co 26
Rajaaho, Otto 5 20, 29, 31, 33
Reid, Earl 20
Reiss, Harry 20
Rhodes, Jack 20
Robertson, Charlie 20
Robinson, Robby 5
Robinson, Tom 42
Robinson, Vince C. 13. 20
Rogers, Jack 20
Roosevelt, U.S. President Franklin D. 38
Rosenthal, John 20, 34
Ross, Ed 12, 13, 20
Royal Air Force Transport Command (RAFTC) 62
Royal Canadian Air Force (RCAF) 1, 3, 7, 32, 38, 39, 40, 41, 43, 44, 45, 46, 47, 48, 61, 62, 63, 66, 67
Royal Canadian Corps of Signals (RCCS) 1, 3, 5, 19, 36, 40, 64
Royal Canadian Mounted Police (RCMP) 5, 7, 9, 39, 41, 49
Royal Canadian Navy 62
Rush, Walter A. 60, 62, 63
Rushton, Arnie 20
Sandman, Lorraine 20
SARAT 65
Sault, Bill 20, 28, 29
Schwartz, Elliot 20
Scott, Tony 5, 13, 31
Scotten, Ernie 5, 20
Semper, Jim 11, 20
Shatford, S.A. 20, 32
Shaw, Jim 20
Signal Hill 1
Simmons, Guy 20
Simpson, A.T. 2
Sisters of Providence Hospital 38
Smith, Austin (Ozzie) 4, 20, 29
Smith, Bob 20
Smith, Gordon 46, 47
Smith, Maurice 20
Sommers, Ed 20
Stalin, Joseph 38
Steigenberger, Alf E. 2, 20
Stephen, Nick 46
Stevenson, G.A. (Al) 20, 57
Stock, Gordon 19
Stokes, Lloyd 20
Strand, Norman 46, 49
Strath, Don & Gerry 51
Stredulinsky, Charlie 18, 20, 43
Stunden, Bill 12, 20, 32
Sugden, John 20
Swatkoff, Joe 20
Symington, H. 66
Takahara, James 56
Taylor, Alf 20
Taylor, Art 5, 14, 18, 20
Taylor, Harold 20
Telesat Canada 64
Thompson, E. 20
Thompson, E.L. 20
Tomlinson, Vince 20
Toole, Gordon 44, 45, 46, 47, 49, 51
Trans Canada Airlines (TCA) 1, 14, 32, 37, 54, 62, 66
Travers, Russell 4, 9, 10, 11, 13, 14, 20, 31, 32, 56
Tudhope, J.H. (Tuddy) 66
U. S. Air Force 3
U.S. Corps of Engineers 31
United Air Transport 19
United Nations Expeditionary Force 41
United States Army Air Force 62
Very High Frequency Omni Range (VOR) 3
Volk, Pete 20
Waddell, Clyde 20
Wadman, Bill 47
Wagonblass, E. 20
Wakaluk, Orville 51
Walker, Earl 20, 36, 53
Wall, Gilbert 14, 20
Walsh, H.E. 61, 64
Warner, Gordon 20
Wastell, Walter 20
Wasylyk, J.R. (Joe) 2, 20
Watson, Frank 18
Weaver, Dusty 8, 20, 32, 37, 47, 53
Wein, Max 60
Western Airlines 37
Wicks, Archie 11, 20, 33
Williamson, Bob 5, 11, 12, 13, 20
Williamson, H.J. (Jeff) 1, 2, 9, 20, 30, 32, 53, 63
Willoughby, Edward 46, 47, 48
Woodruff, Bud 20
Woolven, Doug 12, 20
Wournell, Fred 20
Wylie, Bill 20, 27, 28, 30
Yerxa, Hal 45
Yukon Southern Airlines 4, 5, 7, 18, 19
Zuccato, Leo 20
Zurbrigg, Howie 20



UNIVERSITY OF LETHBRIDGE
3 5057 00397 6981